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FORMERLY

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KOPPERS

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The most efficient method of carbonizing coal is in KOPPERS OVENS and the best coke and by-products are produced by this process.

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Entire Factory Equipped with Gas Lights and Added to the Long List of Satisfied Gas Users

Machine Shop, Drafting Room and Offices of Factory Manufacturing Automatic Weighing Device for Conveyor-Handled Materials Now Using Gas Lighting After Thorough Tryout of Electricity

By S. E. WARDELL.

A short trip through a factory may not seem very inviting, for to the average reader factories are just necessary institutions, best to view from the outside and safest to leave the intricacies of manufacture within the four walls, but this particular factory holds a twofold interest for the gas man. The first being that the owners having been sold on "gas" have recently installed gas lights in the entire building, and the second, that the product turned out by this factory is now in use in the manufacturing departments of many of the gas companies in this country.

FIG. 1—GAS LIGHTING HAS PROVEN ITS WORTH IN THIS FACTORY OFFICE

Upon entering the office of the Merrick Scale Manufacturing Company, of Passaic, N. J., for that is the factory referred to, one at all interested in gas would be sure to notice the rather low-hanging gas lamps, so arranged as to shed the most perfect light on each desk and to eliminate any shadows. After due consideration, the Welsbach No. 2076 blue enamel factory lamps were decided upon for this installation, and there are now a total of forty-eight of these lights in the building. The lighting arrangement in the office is shown in Fig. 1.

The majority of lamps were installed in the machine shop, and some of them are indicated within the circles in Fig. 2. This a well laid-out shop, with one large center section and two bays on either side. There are two rows of lamps in each bay, spaced at intervals of about 12 ft. Every other light on the interior row is staggered in height; that is, one will be suspended about 3 ft. from the ceiling and the next will be about 4½ ft., thus giving a better diffusion. As most of the machines requiring the best of light are located in these two sections, it is only necessary to have two lights in the center section for general illumination.

Machine Shop Has Installation for Hardening and Annealing

In the shop one also finds gas being used in a small hardening and annealing furnace, a forge, and a soldering furnace manufactured by the American Gas Furnace Company, thus helping to put out their product in a cleaner, quicker manner.

FIG. 2—LOCATION OF FACTORY LAMPS INDICATED IN CIRCLES

Drafting Room Equipment

In passing on to the drafting room, which is located on the next floor, even more enthusiasm is formed over gas lights as against electric lights, and assuredly the average draftsman is a most competent and critical judge of the light in which he must work. Each man has his own light, as is shown in Fig. 3, and although a few of the old electric drop lights still hang in the room, their uselessness is evidenced by the fact that the sockets are bulbless.

Automatic Weighing Machinery

This company specializes in what is know as the "Weightometer," used for continuous automatic weighing of conveyor-handled materials. It mechanically weighs practically anything a conveyor belt will carry. Fig. 4 shows this machine weighing coal at the East Twenty-first Street works of the Consolidated Gas Company, of New York. Some of the other gas companies that are using machines made in the now gas-lighted factory are the Springfield (Mass.) Gas Light Company, the New Haven (Conn.) Gas Light Company, New England Coke & Gas Company, Everett, Mass., Sea Board By-Product Company, Marion, N. J., Milwaukee (Wis.) Coke & Gas Company, and others too many to name in this space.

Sales Talk on the Installation

Mr. Merrick, the owner, was particularly well pleased with the entire installation, and among his comments is to be found that phrase which is fast becoming a by-word and a slogan among gas salesmen—"It is better on the eyes." Another good sales point he mentioned was the fact that very often, when the electric lights were in use, the factory operations had to be stopped during the summer thunder and lightning storms when the current would be shut off, but now that is entirely done away with.

Much credit for this installation is due J. H. Adams, who was formerly the industrial fuel salesman in the Passaic office of the Public Service Gas Company of New Jersey, but who has recently left that company to go with a ship-building concern, and also to B. K. Johnson, Welsbach Company representative in that district.

New Use for Gas Incinerators

A recent issue of the *National Gas and Gasoline Journal* points out a new use which has been discovered for a gas incinerator. In many factories a great deal of valuable metal—such, for instance, as brass—has been lost each day in the sweepings which have been thrown away. By burning sweepings in an incinerator, the metal can be recovered from the handful of fine ashes and the quantity thus saved often more than pays for the cost of installation and operation. One factory at Bridgeport, Conn., has installed ten incinerators at various points on its floors to facilitate the disposal of sweepings and to recover considerable quantities of brass, now so precious.

FIG. 3—DRAFTING ROOM WELL LIGHTED IN THE DAY AND EQUALLY WELL LIGHTED AT NIGHT BY GAS LAMPS

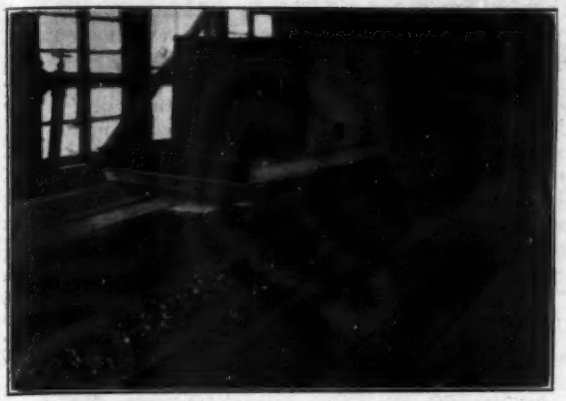


FIG. 4—AUTOMATIC WEIGHING DEVICE IN OPERATION IN ONE OF THE LARGEST WATER GAS PLANTS IN THE COUNTRY

High Carbonizing Results Obtained in England by Steaming the Charge in Glover-West Vertical Retorts

23,000 cu. ft. (10 cu. ft. per lb.) of 465 B.t.u. Gas Per Ton of Coal Carbonized, Together with a Larger Yield of Tar and Crude Benzol

By NORTON H. HUMPHRYS

Very similar conditions appear to prevail, as to coal supply, in England and in America; the chief difference as regards gas making materials in general is that here we are also handicapped by the scarcity and prohibitive prices of gas oils. In both countries there is a phenomenal increase in cost of coal and labor, together with truck shortage and transport congestion that at times run stocks down to a vanishing point.

Present Cost of Manufacturing C. W. Gas

The following shows the actual working figures from a small gas works running a Humphreys and Glasgow plant, 100,000 nominal in size:

Gas made during December, 1,947,000 cu. ft.	
Coke consumed (including boiler) 44 tons, 13 cwt., at $7.695	$339.38
Oil, 4,695 gal., cost on works 37.4 cents per gal.	1,715.93
Labor and sundries	233.98
Total	$2,289.29
Cost per 1,000 cu. ft.:	
Coke, 51.4 lb.	$0.174
Oil, 2.4 gal.	0.874
Labor and sundries	0.120
Total	$1.168

The high consumption of coke is due to the employment of unskilled substitute labor, and illustrates the fact that gas works troubles of to-day are by no means limited to questions of finance.

These trying conditions, together with the additional stimulus afforded by the fact that in munition and military centers there is also an abnormal demand for gas, have led to strenuous efforts in the direction of increasing the yield per ton of coal to the utmost extent consistent with the maintenance of the standard quality, seeing that the construction of additional retorts and furnaces is almost a practical impossibility. Concerns that were sailing close to the wind in the matter of productive capacity at the outbreak of war have been sorely stressed, particularly during the severe winter weather that has been prevalent during the last month.

Types Fitted for Steaming to Any Desired Extent

Foremost among the numerous advancements obtained are those secured with the aid of the Glover-West type of vertical retorts and settings, one feature of which is the admission of steam to the coke chambers as a means of displacing gas that would otherwise be lost when the coke was discharged, and might also be the cause of troublesome explosions when the door was opened. So the standard type is fitted for steaming to any desired extent without alteration or addition of any kind. By increasing the steam pressure at the nozzles on the ends of the supply pipe marked A in the accompanying illustration from the 5 lb. that is sufficient to furnish the scavenging charge to anything up to 45 lb. or more, the lower part of the retort practically becomes a water gas cupola, manufacturing blue gas that passes up and mixes with the coal gas, resulting in an increased yield of gas beyond that afforded by mere dilution. As has been shown by the late Prof. Vivian B. Lewes and others, the blue gas is a preservative against excessive secondary decomposition, and practically squeezes the coke dry, so far as volatile products are concerned, leading to a substantial increase of the yield from the coal, apart from that due to the manufacture of blue gas, and the mixture will stand dilution with a loss of calorific value much less than would be indicated by a calculation based on the relative proportions of coal and blue gas present.

SHOWING DISCHARGING SIDE OF RETORT BENCH OF GLOVER-WEST TYPE OF VERTICALS

Temperature Adjustment an Important Point

An important point in the readjustment of the retort temperature to a degree high enough to ensure the complete decomposition of the steam and keeping of carbon dioxide down to reasonable limits. In this system the retorts are heated by separate combustion chambers, which afford ready means of controlling the heat in all parts of the retort; and being constructed of specially high refractory material, they are found to be quite equal to any strain due to higher working temperatures. In practice the steam pressure is adjusted to suit the temperature of the charge within the retort. The development of steaming in continuously operated vertical retorts is the outcome of the conditions above named.

The information included in the following table has been published by the various authorities cited. The yield of coke is necessarily reduced according to the extent to which the steaming is carried, and the ash increased in proportion, but the larger make of tar, and of the proportion of crude benzol contained in it, is so marked that the process may well merit the sympathy and support of Government authorities.

IMPROVED YIELDS OF GAS OBTAINED BY STEAMING AND GLOVER-WEST VERTICAL RETORTS

Authority	Description of Coal	Steam Pressure, Lbs. Sq. In.	Gas per Ton, Cu. Ft.	Calorific Value, B.t.u.	Approximate Analysis of Coal: Volatile Matter	Ash	Sulphur	Nitrogen	Analysis of Gas: CO_2	CO	H_2&HC_4	CnHm	N&O	Total, Incombustible	Yield per Ton: Coke, Cwt.	Tar, Gal.
E. Blundell.	Mixture of Yorks..	5	12049	530	34.4	7.7	2.5	1.5	2.4	9.8	77.1	2.4	8.3	10.7	13.6	10.90
	Mixture of Yorks Midland	18	15489	509	36.4	8.5	2.5	1.5	2.5	12.1	74.7	2.3	8.4	10.9	13.36	16.60
T. Duxbury...	Washed and dry screened															
No steam....	Yorks nuts	5	13250	550												
With steam..		30	15421	540												
John West....	Haigh Moor (Yks.)															
		5	14050	556					2.0	6.1	79.2	3.0	9.7	11.7	13.57	16.06
		45	17460	494					3.5	21.4	69.6	2.1	3.4	7.9	13.00	17.80
No steam....	Orrell nut	5	14989	503					3.6	16.2	71.9	2.2	6.1	9.7		17.4
With steam..	Orrell nut	25	17759	460					3.4	22.6	69.0	2.1	2.9	6.3		18.2
With steam..		40	21684	442					4.2	21.8	69.2	1.9	2.9	7.1		18.6
L. Hislop.....																
With steam..	Lancashire (Scotch)	..	17150						4.5	15.5						
With steam..		25	23263	465					6.5	17.0						

How the Gas Companies Are Helping the Nation

Carlton W. Smith, formerly an employee of the New Bedford Gas & Edison Light Company, New Bedford, Mass., enlisted in the U. S. Naval Reserve Forces some time ago, and is now stationed at Block Island, R. I.

William H. Kaufman, industrial fuel representative for the Northern Indiana Gas & Electric Company, of Fort Wayne, Ind., is now stationed at the Philadelphia Navy Yard.

The Sioux City Gas & Electric Company, serving Sioux City, Iowa, has a number of its employees in the national service. The following are some of those already gone from the office:

Orville B Bartram.....Co. L, 2nd Iowa Infantry
Albert Herbner .....Co. L, 2nd Iowa Infantry
Theodore Loetz .....Co. L, 2nd Iowa Infantry
George McFadden University of Chicago Ambulance Corps
Andrew G. Monro .....Service Corps
Thomas L. Raker .....U. S. Navy
Harold G. Whittemore . .Ambulance Co. No. 1, Iowa N. G.

The Valley City Gas Company, of Valley City, N. D., has invested $850 in Liberty Bonds, contributed $100 to the Red Cross and Y. M. C. A. campaigns, and $30 to the mess fund for boys. Frank E. Ployhar, president of the company, has devoted considerable time working on the various Liberty Loan, Red Cross and Y. M. C. A. committees, and Mrs. Ployhar has charge of the county food conservation committee.

The Bismarck Gas Company, of Bismarck, N. D., has donated $150 to the Red Cross, Y. M. C. A. and mess fund campaigns, and will have two of its employees in the service Feb. 23. Frank E. Ployhar is president of the company.

Christopher T. Chenery, formerly on the staff of Sanderson & Porter, engineers, and who represented the Peoples Gas Light & Coke Company, of Chicago, Ill., in its effort to have its rates and standards changed, is an officer in the Engineers' Reserve Corps, and was recently relieved from duty with the 305th Engineers and ordered to report to the commanding officer, Engineers' Training Camp, for duty as an instructor.

The Consolidated Gas Company, of New York, has the following employees' names included in its Honor Roll:

F. Smith.....Regular Army
George F. Smith.....Coast Defense
R. Smith.....Naval Reserve
S. Smozewski.....Regular Army
T. Somerville.....9th Coast Defense

H. J. Springstead.....National Army
E. Stone .....Engineers
John Stillwell.....Officers' Reserve
M. Sturman.....National Army
John Sullivan.....National Army

(*Continued on page* 152)

The Gas-Heating Problem in France

An Innovation for Paris — How It Works and Doesn't — Scarcity of Appliances and Rationing Nullify to a large extent the success of the movement

By FRANCIS MILTOUN

That there is a big future for gas heating there is no doubt, but that time is not yet so far as Paris is concerned; indeed, all France. It's the war, of course; but one would have thought it would have relieved the coal-shortage situation considerably if it could have been made practicable.

One reason, the chief, is that we are rationed as to our gas consumption; the next is, that heating appliances are scare, and where installations have not already been made it is impossible to get them done. The Societe du Gaz de Paris, in spite of acknowledged shortage, or loss, of something over $12,000,000 on its recent years' operations, is still paying dividends, the last being announced since the new year, of 4.75 per cent per share, free of all taxes. It all seems very complicated, for Monsieur Louis Dausset, the municipal councillor, who is the people's champion, states plainly that the operating is being continually done at a loss, and it is the part of the municipality to make up any deficiency. This, again, means that the people will pay in increased taxes, so it is natural that there are those who think he is a false friend. He proposes, however, to break the deadlock, and this is something when it is frankly admitted that it costs the company twice as much to produce gas as compared with the price it has been selling for.

Figures That Speak

If you want figures that no critic may refute, here they are: The Paris gas consumption just before the war was 500,000,000 cubic meters; to-day it is but 360,000,000 cubic meters. Out of 720,000 subscribers, more than 500,000 use less than 45 cubic meters per month. This is in the future to cost the consumer 6 cents a meter cube (as against 4 cents previously, though the new regulation which has just been put into force is not actually to apply until April), the other 220,000, by reason of consumption on a large scale (just the reverse of the regime usually put into application), is to pay 8 cents the cubic meter. And even with a rise of from 50 to 100 per cent, there will still be a deficit of 30,000,000 francs a year on the operation of producing and distributing illuminating and heating gas. The question now on the tap is the question of heating.

A campaign started a few months ago, when the coal shortage difficulty was foreseen for the present winter, for the encouraging of the installation of gas-heating appliances. Now its propagaters are being accused of playing up the hands of manufacturers of such appliances.

Monsieur Dausset denies this (the gas company working in partnership with the municipality). He says: "In so far as my having encouraged costly installations which cannot now be used because of the price and quantity regulations which will soon be in force, I protest with vehemence against such an accusation."

Personally, by following the municipal reports closely, I think he has the best of it. The most severe criticism that can be made is that the effort was made at an unfortunate time. Unfortunate, too, is the fact that coal, either soft coal or anthracite, is only obtainable at inflated prices, and but little of it.

Some tenants of big apartment houses, whose landlords cannot or will not furnish a sufficient heat, cannot get coal cards for supplementary heating, and when they can are often allowed only a bare 130 lb. a month, a quantity entirely insufficient.

If any argument was needed towards the development of the gas heating idea it is here. It is apparent, too, in the aftermath of cleaning out the family stove or furnace and disposing of the ashes.

The ash barrels before my own apartment have not been cleared away for well over a week at the present writing, owing to a shortage of labor, a shortage of carts and horses, and a shortage of motor trucks. The story is all there. Things will be different after the war.

Comparative Cost of Combustibles

The following figures by an authority, Charles Nordmann, writing in a technical journal these last days, show the value of the various combustibles now on the Paris market as heating elements:

	Price Per Ton	Cost Per 10,000 Calories
Hard wood	$32.00	$0.128
Soft coal	22.00	0.028
Coke	16.00	0.048
Anthracite	28.00	0.032
Kerosene	20 cents liter	0.20028
Gas	4 cents c/m	0.086

These are "official" prices, whatever that may mean. For coal and coke and wood most of us pay double, and at best we can get but half a liter of kerosene a day, so that is out of the question. Bear in mind, too, that according to the quantities to be used, gas is to be furnished at 6 cents and 4 cents, not the figures quoted above.

Continuing, Monsieur Nordmann states finally that for 10,00 calories gas is high line, rather than most advantageous. It may be interesting for a technical reader in America to make comparisons as it works at home.

For 10,000 calories wood burned in fireplace, costs	$1.28
Coal, ditto	0.56
Anthracite in stove	0.042
Gas in radiator	0.06

There seems to be no possibility of improvement so far as allowing the Parisian public a large amount of gas than is now permitted, in view of the fact that a

reserve stock of 300,000 tons of gas coal which was to be granted by the Government has not been forthcoming. The situation rests there.

Increase in Labor Costs

Another of the rising costs of gas production is that of the increase in wages and salaries. The company being an affiliation of the municipality, it comes under the ruling recently adopted whereby every city employee was granted an increase in wages of 60 cents a day to meet the rising cost of living. This applies to the production manager, the man, or woman, as it sometimes is, who reads the meters, as well as the president of the municipal council and the street cleaner. The public pays, but this is not the fault of the gas company management, and, anyway, we are paying more for everything. The Paris Electric Company, working also in conjunction with the municipality, is also thus affected, though as yet the electricity rate remains as before the war.

The coal charges of the Societe du Gaz de Paris were:

June, 1913	$4.90 per ton
June, 1917	16.50 per ton
November, 1917	32.14 per ton

Before the war the gas exploitation brought the city of Paris a revenue of 20,000,000 francs, and for 1918 (had the price not been raised according to the schedule given) there would have been a 60,000,000-franc deficit, which, according to the new schedule, is expected to be reduced to 30,000,000 francs. All these estimates, apparently, not taking into consideration the value of the by-products.

Gas Plays Important Part in Making Sanitary Containers for Milk from Waste Sawdust

The utilizing of sawdust has been a world problem. Sawdust found some use as fuel, but generally it is wantonly burned as waste to get it out of the way. A solution appears to have been found in Oakland, Cal. A company called the Sanitary Container Company has devised a process whereby sawdust is made into a sticky pulp, states an article in the *Public Service Magazine*, published by the Pacific Gas & Electric Company. This is molded into the form of bottles or cans, and upon drying hardens so as to hold liquid. The process is a series of molds on an endless chain or carrier. The mold dips into the vat of pulp and two hand-like arms clamp up the pulp around the mold. These clamps are made of gauze, so that when pressure is applied in the clamping about the mold the moisture is squeezed out so thoroughly that the pulp becomes hard almost instantly. The clamps then release, and the mold, with its pulp coating, travels through a long tunnel. This tunnel is some 60 ft. long and is no more than a gas oven. By the time the mold comes out the pulp is baked hard. The pulp form is automatically removed from a finished bottle or can as the form may be. The mold then travels along into the pulp vat again for the making of another, and so on. The containers cost but a fraction of a cent. They are suitable for milk, etc. The cheapness permits the containers to be thrown away after use, thus one can conceive of the large saving possible in the milk business. Furthermore, the sanitary advantages through not re-using receptacles is valuable.

Doing Away with the Sledge and Gad In Making Street Openings

P. E. Chapman Describes Manner In Which Pacific Gas & Electric Company Tears Up Block Paving and Concrete Base

Recently by-standers and passers-by on Market Street, San Francisco, were surprised to see a workman open a manhole in the street, draw a wire-wound rubber hose, about the size of a garden hose, from the hole, fasten a tool to the end of the hose and calmly start opening the bitumen paving of the street, states P. E. Chapman, of the Pacific Gas & Electric Company, in *Pacific Service Magazine* for January. When he had finished cutting and removing the top surface of the street he changed the cutting blade of the tool for one of a different type, and broke up the concrete base. This magical removal of the street paving was accomplished entirely by one man, using an air gun fitted with properly designed tools. The air came from a compressor located at a manhole beyond, the hose feeding the gun being pulled through the duct line. The work of four men was accomplished by this man in a novel and safe way, and without any great exertion on his part.

Types of Paving

Most of the paved streets of San Francisco can be classified broadly into two groups, namely, bitumen paved and basalt paved. Bitumen paving consists of a base of concrete covered with a binder course and bitumen topping. In some cases the binder course is omitted and the bitumen installed directly on the concrete base. Basalt paving consists of blocks of cut stone, sometimes called Belgian blocks. These blocks are laid side by side, either on a concrete base or directly on the ground, and are tied together with a tar and gravel binder or cement grout.

The method of opening these types of paved streets has always been by the sledge and gad method, which is effective but slow. In downtown districts of the city the swinging of sledges is, to a certain extent, dangerous, even in the hands of the best of men. Good laborers skilled in the use of the sledge are hard to get. Wages for this class of labor has gone up, but the labor supply has diminished.

Equipment Used

The electric distribution department of the San Francisco district has been experimenting for some time on the opening of paved streets by the use of air guns. Several months ago these tests were carried on in connection with the construction of duct lines in the vicinity of the company's new electric substation "E." The small air compressor used in furnishing air for these tests was not of sufficient capacity to give the best results, but demonstrated beyond a doubt the success of the method. Bitumen paving on a concrete base was safely and cheaply opened. The results were so gratifying that plans were laid to acquire a compressor large enough to operate several air guns. This outfit was assembled in the yards of the Pacific Gas & Electric Company at Fifth and Tebama Streets, and consists of a duplex air compressor driven by an electric motor, mounted on an iron frame, together with the tank carrying water for cooling purposes. The air tank is slung

BY CHANGING THE CUTTING TOOLS THIS AIR DRILL WILL CUT BITUMEN TOPPING OR CONCRETE BASE

underneath, thus making a compact unit. The whole arrangement is mounted on four iron wheels and fitted with a tongue so as to be readily moved about by hand or towed by an automobile. The compressor furnishes air sufficient to operate two air guns under heavy going, or three guns where the opening of the paving is easily accomplished.

The air drills used by the men are fitted with cutters and gads, similar to those used in opening the pavement by means of sledges. They differ in this respect that the head is drawn down until it fits into the air drill. The man operates the drill by simply pressing down on the handle, which puts the gun into operation.

There are a number of advantages gained by opening streets with drills operated by compressed air. The operator of the gun does not have to worry regarding pedestrians and traffic, for the tool he is holding is directly in front of him and not swinging over his head as in the case of the sledge-hammer method. No chips of steel from the gad can fly off to injure people or break windows, for the head of the gad is in the gun proper and in case of breakage the broken parts stop the operation of the gun until they are removed.

Safety Precautions

The compressor has all moving parts covered, electric wires and connections insulated, an externally operated switch and an air tank fitted with safety valve and automatic regulator. The entire machine was built for safe operation, to meet the approval of the industrial accident commission, and was not placed in operation until inspected by the company's safety expert.

The cost of opening streets is far less than by the sledge-hammer style. A safe statement would be from one-third to one-fourth the old cost. The amount of labor required is less, the dressing of gads and cutters is reduced to a minimum, the current consumption small and the initial outlay under $1,000. The outfit can readily be moved in a few minutes to a new location.

Advance in Ashland, Wis., Gas Rates

Ashland gas rates were recently boosted by the railroad commission. The minimum bill fixes 50 cents for the first 5,000 per month—gross rate, $1.80; net rate, $1.65. All over 5,000 cu. ft., gross rate, $1.70; net, $1.55.

Engine Room Rules

The National Safety Council has collected a most valuable set of engine room rules, which should find a place of prominence in the manufacturing department of every gas company in the country. These are abstracted from one of the *Safe Practices* pamphlets, entitled "Engine Guarding and Engine Stops":

(a) Employees should be strictly forbidden to enter the engine room, except for a special mission, and then should remain only as long as necessary.

(b) The engineer should not be permitted to leave the engine room until some other attendant who is thoroughly familiar with the engine, valves and signals is present to take charge.

(c) No person, other than those responsible for the operation of the engines, should be allowed to touch any valves or other part of the mechanism, or approach any moving part.

(d) No one except the attendants should be permitted to go inside the railings, or upon footways, when the machinery is in motion.

(e) The safe speed for each flywheel should be known, and in no case should this be exceeded. Flywheel revolutions should be recorded every day, in order to make sure that the engine is not running over the speed limit.

(f) All parts of engines and accessories should be frequently and thoroughly inspected, and daily tests should be made of the governor mechanism and automatic engine stops.

(g) Before getting into an engine or pump, be sure that the flywheel and cross-head are blocked, so that a leak of steam cannot start the engine.

(h) Be sure to place danger tag and lock on valves before going into an engine or pump, or to work on machinery, and notify the engineer or operator.

(i) Under no circumstances should engines be started until they are thoroughly cleaned by alternately blowing live steam through each end of the cylinders, and the steam pipe and cylinders thoroughly drained of all water. The drip should be left open until the load is put on, and then closed. Be sure to warm the engine at both ends.

(j) In shutting down, the drip valve should be left closed until the engine is stopped. If the throttle is equipped with a by-pass valve the throttle should be closed and engine stopped with the by-pass. This gradually stops the engine, avoids the pumping effects of the piston and prevents water being drawn into the cylinder and cracks when compression occurs.

(k) Never attempt to "bar" a flywheel around offhanded, nor pull it off center by grasping the belt, when the steam pressure is on.

(l) Never start to take cylinder head off or piston out of cylinder without making sure that the throttle and exhaust valve are shut tight and locked and the drains wide open; nor without trying the indicator cocks to see whether there is any pressure on.

(m) Never stop the air pump before stopping the engine (condensing), as the condenser and exhaust pipe may be flooded and overflow into the cylinder.

(n) All steam traps should be kept clean and in working order. Should a trap get out of order, and it be impossible to repair it at once, the by-pass should be opened sufficiently to pass off all water which might collect.

(o) Leaks in pipes, flanges or gaskets should be repaired at the earliest possible time.

(p) In opening up a cold line, all available drips should be opened. The line should be warmed by opening the by-pass where possible, or by opening the stop valve sufficiently to warm very slowly. Never open the main valve until certain that the line is thoroughly heated. An inexperienced attendant should not be allowed to turn steam into a cold line until properly instructed.

(q) Automatic valves should be frequently examined to insure their proper action in emergency.

(r) Under no circumstances should vacuum-breakers, governors, engine stops or other safety devices be blocked or otherwise made ineffective. If such apparatus is out of order it should be repaired at once.

(s) Do not stand in front of cylinder head of engines.

(t) Do not place any material, tools, etc., on platform or stairs around engine. They might fall off and injure someone below.

(u) Never work in a gas engine room alone; always have a helper with you.

(v) If you find a man overcome with gas, get him into the open air at once, send for the doctor and notify the foreman.

(w) Smoking and open lights should be forbidden around gas machinery and gas pipes; otherwise an explosion might occur.

How the Gas Companies Are Helping the Nation

(*Continued from page* 148)

David M. Taylor....8th Coast Artillery
Harry Thiebaud....12th Infantry
William C. Thomas....National Army
William Thomas....12th Regiment, N. Y.
A. E. Thompson....Engineers

E. Thompson....Naval Militia
Harry Thompson....National Army
C. Tierney....69th Infantry, N. Y.
Edward Tierney....Regular Army
J. E. Trainor....National Army

W. D. Tynan....Naval Militia
William Vahey....69th Infantry, N. Y.
J. Van Steenburgh....22nd Engineers, N. Y.
W. Vaughan....Infantry
T. Verko....Russian Army

A. J. Veltre....National Army
A. Von Werne....9th Coast Defense
A. Van Den Driessche....Regular Army
Edward F. Walsh....National Army
C. F. Walters....National Army

Christopher Ward....10th Infantry
F. Ward....22nd Engineers, N. Y.
Richard Ward....10th Infantry
Henry Warth....2nd Infantry, N. Y.
G. Weber....Navy
Charles Weinberger....Navy
P. Weinman....9th Coast Defense, N. Y.
R. A. Weiss....Naval Militia
James Welsh....National Army
M. Werner....22nd Engineers, N. Y.

E. V. D. Wetmore....8th Coast Artillery
A. G. Whitmore, Jr....Army
D. Wood....9th Coast Defense, N. Y.
A. Woodruff....13th Coast Defense
W. Gano Wright....Field Artillery
J. Zak....Navy

THE FAYETTEVILLE LIGHT & POWER COMPANY, serving Fayetteville, N. C., has invested considerable of its funds in the Government loans and contributed to all departments, supporting the Government in general. Three of its employees have already entered the service and two more are subject to draft.

THE WATERVILLE GAS & OIL COMPANY, of Waterville, Ohio, and its employees have invested $5,000 in Liberty Bonds and contributed about $500 to the Red Cross campaigns.

W. B. MISER, manager of the Oklahoma Gas & Electric Company, Drumright, Okla., has been appointed chairman for Drumright of the Military Training Camp Association, which has for its object the securing of competent men for inspection of equipment for the Division Signal Corps.

THE WISCONSIN-MINNESOTA LIGHT & POWER COMPANY, of Red Wing, Minn., recently made a suggestion through the local newspapers that the refunds which were to be made by the gas company for overcharges on Feb. 7 be turned over to the Red Cross, which has met with much favor and it appears likely that the plan will be adopted. The refunds in most cases are small, being about 20 or 25 cents for the average family, but in the aggregate the sum will be considerable. It is estimated that between $400 and $500 could be secured in this way. Those in favor of the plan declare that the money has already been paid out and that there are few gas users, if any, who would miss the small amount involved. The small users of gas, naturally, will have only small refunds coming, while the large consumers will not miss their share.

ROY H. UFFELMANN, formerly connected with the Burlington Gas Light Company, of Burlington, Iowa, is now with the Iowa National Guard.

BRYAM SMILEY has enlisted in the U. S. Navy. He was formerly in the employ of the Harrisburg Gas Light Company, of Harrisburg, Pa.

THE SALEM (MASS.) GAS LIGHT COMPANY has recently been having demonstrations of war cooking. During last week samples of war bread were given away. These demonstrations are given under the auspices of the Salem Conservation Committee, and are being held at the Essex Street office of the gas company.

Shreveport, La., Company Commended for Its Service

The Shreveport real estate board, through a motion by S. B. Simon, secretary, has written a letter to the Southwestern (La.) Gas & Electric Company, commending it for the efficient service rendered this winter to the residents of Shreveport in their homes and places of business.

The real estate board feels that the gas company merits the thanks of the citizens of the community, which it has extended to them, and has also written a letter to the *National Real Estate Journal*, telling how fortunate the city is in having oil and gas wells at its very doors.

THE SOUTHERN GAS COMPANY, of Carlyle, Ill., has filed with Secretary of State Emmerson, of Illinois, an application for incorporation with a capital stock of $300,000. The incorporators are George T. Tourek, James J. Kelly and Joseph D. Daly.

ONE OF THE POSTERS SOON TO APPEAR IN EVERY GAS COMPANY'S OFFICE

When All Factors Are Considered Gas for House Heating is Found to be Economical

Helps to the Gas Man Who Seeks to Push Gasteam Radiators — Getting Buildings Piped in the Spring — Complete Apartment House Installations

By E. V. DAILY AND FENTON KELSEY

Editor's Note: All other factors being equal, it is obvious that the specialist is in a better position to perform a given task than one whose mind is occupied by other duties, and to whom the particular task is but a part of the day's work. The successful pushing of gas for heating has become to the gas industry more than merely good business. It is a National duty. Next winter our readiness to supply gas for house heating will possibly be the most important feature of the business; the very repute of the gas industry as a public servant may be determined and fixed for many years to come by the extent of our preparedness in this branch.

There are numerous efficient and practical systems and appliances for heating by gas. It is essential that the gas man be familiar with the strong points in favor of each and possess a knowledge of how best to push its sales should he determine upon any particular type as the entering wedge in his effort.

No one should be more appreciative of the merits of the particular appliance than its own manufacturer. No one should have studied more deeply in a broad sense the best methods of getting it on to the supply lines. Hence, that it might bring to its readers the best that is available in the way of information leading to greater sales of gas for heating, the AMERICAN GAS ENGINEERING JOURNAL *has gone to the manufacturer with an invitation to tell his story.*

The following article was prepared by E. V. Daily, of the sales force of James B. Clow & Sons, and by Fenton Kelsey, who handles the firm's technical advertising. It tells the story of the Clow Gasteam Radiator. Subsequent articles will tell the story of other types, and doubtless add other valuable suggestions towards bringing gas heating to the important plane its acknowledged and proved merits entitle it to occupy.

Elkton, Md., Gas Plant Sold

It is understood that the Elkton (Md.) Gas Light Works has been bought by Philadelphia capitalists, who will greatly enlarge the present gas works, and not only extend the mains to all sections of Elkton, but will also furnish gas to several of the nearby towns.

So full of possibilities for revenue is the season just ahead of us, because of the high cost of coal, that the minds of gas men are turning with increasing interest to the ways and means of getting at gas-heating business.

We have been pleased, therefore, to collect the results of experience which, by performance,

have proven signally successful.

Let us say right at the start that going after heating business in new buildings is discouraging at first.

Buildings have just been thought of, but after a lot of necessary work has been done and buildings do actually get under way we have a lot of steady business.

Often a man building a house, if you catch him soon enough, can be induced to have the piping put in in the spring and the rest put in in the fall. We simply mention this in passing, to show that it is best to take time by the forelock.

First, it will be well to fortify ourselves as to the strength of our position in trying to get people to heat their houses and their stores and factories with gas. There are plenty of gas men who are a bit "afraid of the cars" when they find themselves actually competing with solid fuel.

But they needn't be. Let us look a bit into consumptions, under widely varying conditions.

You will find that the accompanying consumption curve on gas-fired radiators follows the temperature curve of a particular region with remarkable faithfulness.

This fact is interestingly brought out in a chart prepared by J. C. Grey, superintendent of the Savannah (Ga.) Gas Company. Mr. Grey says:

"In this locality we do not strive for auxiliary heating, as we are not satisfied unless we get the entire season's heating doing away with coal. Of course, this is feasible, as temperatures seldom go below 20 deg. above zero and the gas bills are not excessive when gas is used throughout the coldest periods.

"The chart shown is for a store of brick construction, connected on either side and exposed on both ends, with an entire glass front on the lower floor. The second floor is used for offices. This entire building is heated to approximately 70 deg. Fahr. during business hours by the use of *twelve* Clow gasteam radiators, and gives absolute satisfaction. The gas consumed the first year is out of proportion with the amount used the second and third years that this installation was in service, and can be accounted for by the fact that heat was wasted.

"The installation consists of two twelve-section two-column and four ten-section four-column Clow gasteam radiators on the second floor and two fifteen-section and two ten-section four-column and two ten-section two-column radiators on the first floor. The entire cubical contents of the building amounts to 70,560 cu. ft.

"This chart shows a curve for the gas used in cubic feet, one for the lowest temperature registered and one for the mean lowest temperatures, which gives a fair idea of heating conditions in this city.

"We have installed 325 Clow gasteam radiators in Savannah, consisting of 3,373 sections, and expect that a great many more will be sold owing to the good results obtained from the existing installations."

ACTUAL GAS BILLS SHOW LOW OPERATING COST

Actual bills of a few of the installations of gasteam radiators given below not only show great economy in large installations, but they prove at the same time that on small installations this type of heating will save money. The figures follow:

Class of Building	Amount of Radiation (feet)	Annual Gas Bill	Approximate Cost per Foot Radiation per Year	Cost of Gas per 1000 Ft.
Fish Furniture Company, Chicago.....	1920	$697.94	$0.36	$0.80
Independent Drug Company, 4201 Broadway, Chicago	300	192.16	0.64	0.80
United Cigar Store, Chicago.....	120	54.72	0.27	0.80
J. Funk, 1022 West 51st Street, Chicago.	120	20.64	0.17	0.80
F. G. Stone, Boston.....	480	187.80	0.39	0.80
Fultz & Company, Boston.....	185	56.64	0.30	0.80
Goodlow Corporation, Syracuse.....	244	122.47	0.50	0.95
Hope Congregational Church, St. Louis.	2000	168.30	0.08	0.80
Residence, Rev. E. Hussman, St. Louis..	900	180.00	0.20	0.80
Willys-Overland Company, Jacksonville, Fla.	1002	146.85	0.15	1.15
S. C. Society Hall, Charleston, S. C.....	270	66.10	0.25	1.00
First Congregational Church, Savannah.	380	23.40	0.07	1.00

You will note that these figures show much lower cost per square foot in some installations than in others. In every case, however, when the total bill per year is considered and compared with the cost of coal, the cost of janitor necessary to take care of a boiler, the dust, ashes and so forth which are avoided by the use of gas-heating units, it will be found that there is great economy in the installation of gas-fired radiators.

Getting the Prospects

Obviously, to get all the business available in new building operations we should tap all the possible sources of information as to new construction under way or even remotely contemplated. And these sources should be kept open all the time by judicious cultivation and by the proper detail and clerical work.

Live prospects can be secured through these mediums:

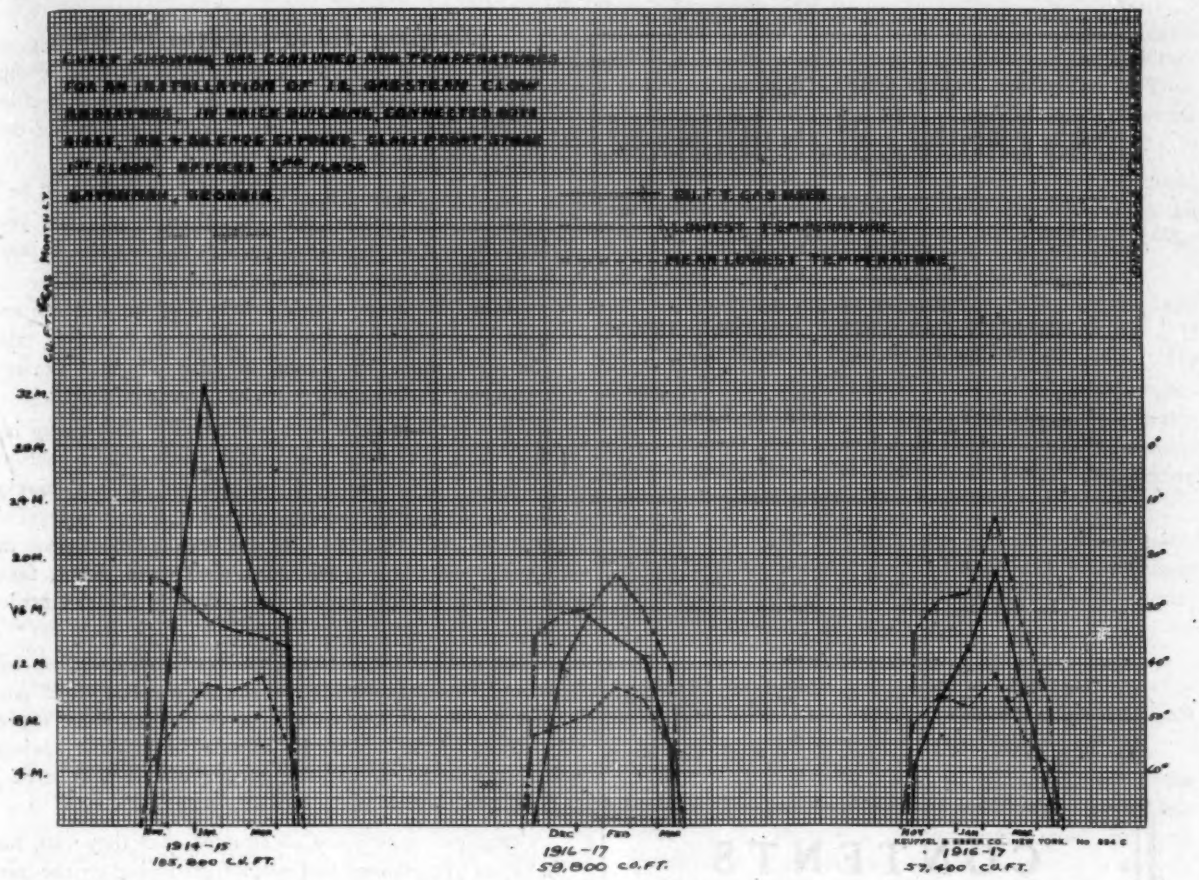
First—In large cities there is a special service furnished by building trade papers of advanced news of contemplated buildings of all kinds. This service usually gives the name of the owner, architect and builder or contractor.

Second—The building trade publications give notice of all building operations, the name of the owner, architect and builder or contractor.

Third—Real estate renting concerns that have buildings which could be rented if heat is provided —especially in stores, factories and loft buildings.

Fourth—A list of the building permits issued from the city hall is secured daily or every few days. A card is made out covering each of these permits, with proper information thereon, and turned over to the salesman for report.

Of course, the alert new business department has its representatives in every district or zone in the town, who generally know what is going to happen on a vacant lot by the time the first bit of earth is turned for excavation. And if the "representative" is



worthy of the name, he will have dug out all the necessary information and gone to the mat with all the interested parties long before the building is ready to be heated.

In the properties of the Public Service Gas Company of New Jersey, this method is outlined by J. P. Hanlan:

"Our method of following up new building operations of any character is as follows:

"We subscribe to what is known as the Dodge Service in the East, which covers practically all of our properties, and through the medium of this service we are notified systematically of all new building operations contemplated or in progress.

"In addition to this, we make it our business, of course, to find out from the local authorities of any plans that have been filed with them. In the larger situations we have men whose business it is to work with architects, plumbers and builders; in fact, all builders of new buildings, whether an architect is employed on them or not."

Advertising

The function of advertising in lining up new building heating business is a particularly definite one.

In the first place, it must be remembered that when you begin to approach your new prospect he is only just beginning to build and, while he has it in his mind to consider everything that will give him value for money spent, your proposition is but one among hundreds, even though yours is more vital than ninety-nine others.

James P. Hanlan, of the Public Service Gas Company of New Jersey, says:

"Personally, I believe that the sale of the Clow heater has been the result of long, slow work in this territory, and that advertising probably contributed as much toward popularizing this radiator as did personal salesmanship.

"The method which we employed to enlist the active co-operation of architects, plumbers, contractors and others generally has been to mail them monthly a piece of advertising matter, and we are to-day getting results from our last year's mailing campaign along these lines.

"We used a series of outdoor color pictures with a monthly calendar and some advertising matter on the face, and on the back we told our story about the particular appliances we wished to call special attention to. I am enclosing you a sample of one of the cards which we used, and I know these cards have been very acceptable in various factories, architects' offices, plumbers' and contractors' offices, bakeries, etc. In fact, in some instances we have had calls for them where, for some reason or other, the card was not received during certain months by those who had previously received them. This method of advertising is, as you

(*Continued on page* 162)

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Keeping Those Gardens In Mind

The time will shortly be upon us when those companies which intend to facilitate the planting of gardens by their employees will have to take steps to put their plans into execution.

The need of garden produce, of foodstuffs, will be as great, if not greater, this year than it was last year. And the test of the individual's patriotism will be more severe than it was last year.

Many, doubtless, it being their first try, did not succeed with their gardens last summer. And it takes something more than a mere impulse to induce a man to try again at a task where he has already failed.

Last summer there was a possibility that many had their fingers crossed when they planted their patriotic gardens. It was not really patriotism that was moving them. They were simply following the crowd. This type will not be a part of the garden movement the coming summer. It will have discovered that it takes something beyond mere acquiescence to grow a garden crop.

The test on the salaried man's pocketbook, too, will be much more acute this year than it was last year. And then his surplus dollars will serve a much more useful purpose. Every dollar he makes through the savings in his necessities that the garden effects will have a double value to him.

Companies which are so situated that they can, but have not yet planned to promote gardening on the part of their employees, should do so as a matter of good business.

Labor costs in some cases have gone so high as to seem at the breaking point.

The employee's cost of living is the basis of nine out of ten demands for bigger wages. Help him keep his living costs down and you postpone for a time at least a possible demand for still higher wages.

A Monopoly on the Future

Professor Robert G. Wall, in a recent address reprinted in *General Electric Review* for January, 1918, bewails the fate of young men who learn a trade which will become obsolete. Among the obsolescent trades he enumerates is *gas lighting.*

Is the electric industry so hard pressed for men that it must lure them to it by false statements? Or is it that the professor is in a little, narrow groove; that he has presumably a fair knowledge of what is taking place in the electrical industry, but simply hasn't time to inform himself of developments in any other industry, however closely related to it?

The latter presumption would seem the most charitable.

But, surely, since he takes it upon himself to discuss illumination subjects, the professor must know that even so high an authority on lighting as Dr. Charles E. Steinmetz has termed the Welsbach lamp the most radical advance through all the ages in illuminating engineering and light production. Surely a product so meritorious as this could not die out completely. Is the professor likewise not aware that the advent of this mantle brought on a crisis in the then very young electrical industry, and drove it to the power field as a possible life saver?

Is the professor ignorant of the fact that not only has gas existed against electricity as an illuminant, but has actually displaced it on the relative merit basis in city department stores, churches, ocean resort boardwalks, chain stores, etc.? Surely not. Else he would not have advised his listeners as he has. But is it right that a teacher should seek to inform others before he has fully informed himself?

The curse of our educational system has been incompetent teachers. What is the value of learning if we do not learn facts? He who essays to teach should first be prepared. He should know whereof he speaks before he gives utterance to statements that will be eagerly absorbed.

This journal cannot foresee the day when gas lighting will be obsolescent. Very thoroughly informed men in both the gas and electric industries are similarly impotent. Millions of dollars have been invested by conservative business men in the future of gas lighting.

Yet Professor Wall bewails the destiny of the young man who devotes his life to developing it.

We do not know how many were in attendance when he uttered such a thought. If there were one or a hundred, he owes each of them an explanation; a frank admission that he spoke without knowledge, an act that in a teacher is the most reprehensible that could be committed.

Selling Home Labor Saving Machinery to the Man of the Family

Various utility companies have found it good policy to concentrate a good part of their merchandising activity in the home labor-saving devices on the man of the family. Sound reasoning underlies the policy. It could be adopted, in part, at least, very advantageously by a much larger number of gas companies than have as yet even considered it.

The wage earner of the family is constantly surrounded by labor-saving machinery. It is irksome to his spirit to do any work that a machine can relieve him of. Take note, for instance, of the strained expression on the countenance of the man who is accustomed to dictating his business letters as he writes a personal letter in long hand.

Home labor, by and large, is the most inefficiently performed labor in the country. Think of the irksomeness of sweeping a couple hundred square feet of floor area with a broom; of washing dishes and laundry work by hand.

The woman in general has not gone beyond the home in her outlook. She has not become accustomed to the presence of labor-saving machinery. She would like to employ it, but she distrusts it.

The man, on the other hand, can easily comprehend the advantages of a vacuum sweeper, for instance, if he has observed a floor being swept by a broom. He does not regard a labor-saving device as a new-fangled contraption that will get out of order every ten minutes it is in use. He sees many of these apparently miracle-working devices about him day after day. He knows that they are entirely practical.

In selling labor-saving equipment to him the salesman finds the ground work already done. In selling it to his wife he must first convince her that it is practical and usage-proof.

Willingness to Supply House Heating an Asset in Good Will

Merchandising heaters and supplying gas for house heating has gone beyond the point of merely good business. It has become a National duty, and the good repute of the gas industry as a public servant is directly dependent upon the degree in which it meets its responsibilities in this branch of the business.

The inconveniences, deprivations and discomforts that war-time conditions bring with them are many and trying. The spirit with which they are met determine the effectiveness of the nation in conducting the war. The degree in which a whole population will adapt itself, in a period of patriotic fervor, to such conditions is sometimes amazing.

But the people of a nation are of all kinds and degrees. Some are of inflexible will and endurance. Others are pitiably weak. The straining point of the strong oftentimes goes beyond the breaking point of the weak. And the strength of a chain is its weakest link. It is best, therefore, that the citizens of the country be spared every strain on their courage that conditions will allow.

We have high prices, we have heatless days industrially, with the loss of wages to many, we have food restrictions, we have taxes both direct and indirect, we have interrupted transportation lines, we have a terrible winter, we have coal shortages, etc.; countless influences to depress the spirit. Yet the courage of the people stands steadfast.

But, say, the New York gas companies, for instance,

on the occasion of the excessive demand described in these pages some weeks ago, had been compelled to place obstacles in the way of obtaining gas for heating. How many homes would have had to go heatless in record cold weather? How many thousands would have suffered?

A comparatively weak man can have his grown son killed fighting, yet not flinch in his desire that the war be carried to a victorious conclusion. But it would be a terrible strain on the purpose of even the strongest to see his immature offspring die from freezing because of lack of heat directly traceable to the war.

The ways gas companies can help the nation seem innumerable on reflection, but the help that can be rendered by making up the deficiencies in the coal supply seems almost to rival the service they can render in supplying toluol.

Men have battled victoriously with pitchforks, but they never battled successfully without spirit. The morale of the soldier and of the nation is as important as their gunpowder. And unbearable hardships tend to lower the morale. The knowledge that his family suffers at home detracts from the spirit of the soldier at the front.

It is the privilege and the opportunity of the gas industry to prevent such unbearable hardships as pertain to lack of heat. It thus becomes a tremendous sustainer of national morale.

City Gas and Modern Warfare

The exigencies of war are likely to familiarize every domestic user of gas with one phase of our great chemical industry and its relation to modern combat. We refer to the recovery of toluol from city gas and its conversion into trinitrotoluol, TNT, the high-explosive of modern warfare. The shortage in this commodity, which has been recovered largely from by-product coke-oven gas, will be brought home to every user of city gas in this country before the campaign for its production is over. Gas consumers thus become vitally interested in the production of explosives, and in the end it is likely that they will profit by changes in gas standards which are otherwise desirable and which war is only hastening.

Two different standards exist for determining gas quality. Almost every city has adopted one, and some have both. There is the candle-power standard, which is now considered antiquated, being a relic of the days before the incandescent mantle was known. Opposed to this is the more modern and scientific heating-value standard which grades gas in terms of B.t.u. Now toluol and benzol are important factors in both the heating and lighting values of city gas. Hence the removal of these hydrocarbons, or particularly toluol, will reduce both the lighting and heating values below the standards prescribed in various cities. This has necessitated a revision of the standards already in effect by city ordinance, and in some cases has involved the consent of public service commissions.

From estimates made by the U. S. Bureau of Standards as to the influence of toluol recovery on gas quality it appears that candle-power is more seriously affected than heating value by the removal of toluol. This suggests the elimination of the candle-power standard altogether and the substitution of a heating value requirement; and since there are other reasons for abandoning the older standard in favor of the newer, the effect of the war is to hasten the adoption of an otherwise desirable practice.

Thus are peaceful pursuits modified by the requirements of war. Hitherto city gas has been just a convenient form of fuel to be had for the turning of a valve; suddenly it becomes an important source of a war necessity. That we have not always recovered toluol from city gas and thereby been prepared for the present emergency is due to economic conditions and not to lack of knowledge or ability. Like many other by-product industries which we have left to our European neighbors, toluol recovery has not appealed to us. It served us best in the gas where it was originally formed, and there was no good reason for taking it out. Technical industry is replete with similar instances.—*Metallurgical and Chemical Engineering.*

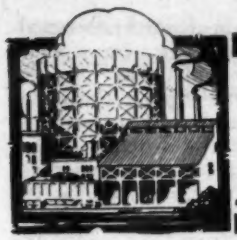
Gas Conservation in the Home

It has always been wise from the standpoint of economy to conserve gas, but at present it is more than wise, it is patriotic. Even if a large gas bill is no source of strain on one's household purse it is everyone's duty to conserve gas as much as possible in this period of fuel shortage.

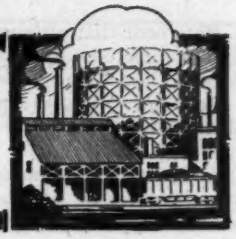
The place where most gas is wasted is in cooking. With the exception of lights left burning when there is no need there are few ways of wasting gas from lights, but there are numerous ways in the cooking realm. First of all the burners should not be lighted before the food is ready to cook, and they should be turned off the minute it is through cooking. Then one is wasting gas every time gas burns at the side of a cooking vessel. The giant burner is in a convenient place at the front of the stove, and although it is intended for use under fruit kettles or large base pans only it is used much more frequently than the standard burners. This is wasteful of gas, as the giant burner uses much more gas than a standard. Also it is wasteful to use a standard burner when the simmering burner would answer the purpose.

Kettles allowed to become blackened with the carbon that is given off in the gas are poor heat conductors, and require more gas to bring their contents to a boil. All stew pans should be carefully washed after each using so that no carbon accumulates.

It is well worth while to buy a steamer in which several stew pans can be set at the same time, all heated by one burner. A complete dinner can be prepared in one of these steamers and all with a minimum of gas. An appreciable economy can be secured by using double or three part saucepans fitted together over a single burner. Also there is a cast-iron top or perforated "grid" which, placed over a standard burner, insures evenly distributed heat under a large kettle, and various other gas-saving devices, such as the 'perfo hood oven," which is a miniature oven to be set over a standard burner.—*New York Sun.*



NEWS OF THE GAS INDUSTRY



Readiness-to-Serve Charge Effective On All Bills for February at Johnstown, Pa.

The Johnstown (Pa.) Fuel Supply Company intends to put into effect beginning Feb. 1 the "readiness to serve" charge of which it gave notice in July, 1916, and which was made the subject of protest by the city of Johnstown before the public service commission. The Johnstown company, which is a distributing agency, buying its gas from the Peoples Natural Gas Company, believes that there is no other way to meet its obligations under present increased cost of operations than by collection of this 50 cents a month from each consumer. The statement, which fully sets forth the views of the company, says in part:

"Therefore, beginning Feb. 1, 1918, the customer charge or readiness to serve charge of 50 cents per month will be collected from each and every customer using natural gas service supplied by the Johnstown Fuel Supply Company, and this must be paid hereafter by each customer each month commencing with the bills for February, payable on or before March 15, 1918.

"The company does not intend to make collection of the customer charge billed against customers from August, 1916, to Feb. 1, 1918, until the Mayor's protest is decided by the public service commission, and then only, of course, in compliance with the orders of the commission and the the necessities of the company.

Worcester, Mass., Rate Again Increased

An increase in the price of gas to $1.15 net per 1,000 ft. is announced as a war-time measure by the Worcester (Mass.) Gas Light Company. This is an increase of 20 cents, and follows close upon the increase granted in December, a short note of which appeared in the Dec. 22 issue of the AMERICAN GAS ENGINEERING JOURNAL.

Monmouth, Ill., Company Granted 15 Cent Rate Increase—Advance Charged Since Dec 1 Will be Rebated

In an order entered recently the public utilities commission directed the Monmouth (Ill.) Public Service Company to put into effect, beginning Feb. 1, a rate of $1.45 gross or $1.35 net per 1,000 cu. ft. of gas. The company had asked permission to establish a rate of $1.50.

The new schedule provides for a minimum bill of 50 cents and a 10-cent discount for prompt payment.

Unless otherwise ordered, the new rates will cease to be operative after Jan. 31, 1919, and in the meantime the company is ordered to file with the commission a "block schedule," which promises a sliding scale of rates varying with the gas consumed.

Mr. Stevenson, manager of the company stated that this raise would supersede the "block schedule" rate which had been charged by the company for gas in December, and that the company would rebate the raise to consumers until the time for the advanced rate goes into effect, which will be with the bills sent to consumers the last of February and first of March.

Many consumers noticed when they received their bills for December that the charge was higher than it had been, and there was some complaint. The company, according to Mr. Stevenson, had filed its "block schedule" with the commission, expecting it to be recognized immediately, but such recognition was not given and now the company assures its patrons that the extra amount charged beginning with December bills will be rebated by crediting the consumer with the difference in the bill as figured by the rate sought by the company, so all have made a payment on their next month's gas bills.

The new rate is just a net raise of 15 cents per 1,000 over that charged now, and is granted because of the increased cost of production.

Chicago Company Makes Its Report At Annual Stockholders' Meeting—Deficit Due to Increased Costs

Inventory and Valuation of Company's Entire Properties Being Made—$1,000,000 Already Spent On Enormous Task

The serious financial condition in which the Peoples Gas Light & Coke Company, of Chicago, finds itself was revealed at the annual meeting of its stockholders on Feb. 11, when Samuel Insull, chairman of the company's board of directors, declared that, regardless of what action the Illinois Public Utilities Commission took on the company's request for an increase in rates, he did not expect any dividends would be paid during the year 1918.

Mr. Insull called attention to the fact that although all dividends paid in 1917 were paid out of surplus earnings prior to Jan. 1, 1917, the company closed the year with a deficit of $365,201. Present indications are, he added, that if the company runs along about as it is with no further increase in the cost of fuel, material or labor, the corporation will come through 1918 about $900,000 short of earning its bond interest.

Another revelation of the meeting was the fact that the company is having prepared an exhaustive inventory and valuation of its properties which, according to a member of one of the five firms engaged in the work, is the greatest and most expensive task of its kind ever undertaken. One of the purposes of this inventory will be to silence forever the charges of overcapitalization which have been hurled against the company. The appraisal will show, officials of the company say, that there is ample security behind the $85,000,000 of outstanding stocks and bonds.

Some idea of the stupendous scope of the undertaking may be had from

the statement that although it is not quite completed, approximately a million dollars already has been spent on the work. The inventory alone will make fifty-five or more volumes of 500 pages each.

Officials of the company say that although the cost of the appraisal represents approximately 1 per cent of the company's total resources, the results will show that this money was well spent, and that the appraisal will relieve the company of a perennial source of embarrassment which has bobbed up in all its negotiations with the city or State, and in nearly all the litigation to which the company has been a party.

"The financial condition of the company is not satisfactory," Mr. Insull told the holders of 236,000 shares of the company's stock who were present in person or by proxy at the meeting. "And it is not likely to improve unless we are granted the 22 per cent increase in rates for which we have petitioned the State Public Utilities Commission.

"The indications are that if we run along about as we are now, with no material further increase in the cost of materials, fuel and labor, we will, for the year 1918, come about $900,000 short of earning our bond interest. It will be noted that all the dividends paid in 1917 were paid out of surplus earnings prior to Jan. 1 of that year.

"What the public utilities commission will do I, of course, cannot say; but it seems to me incredible that a public official body which has shown its readiness when public utility companies are making too much money to reduce rates in the interests of consumers, will refuse to grant just relief to the companies when they not only are not making their fixed charges, but are actually losing money in keeping going a necessary public service."

Answering stockholders who criticized the officers of the company for going before the State commission with their petition instead of to the city council of Chicago, Mr. Insull said this was made necessary by the experience of the company in past negotiations with the city. He cited the delay from Jan. 9, 1915, to June 25, 1915, in reaching an agreement with the city on the last important matter in negotiation, a matter which, if handled by two business organizations, would have required two months or less to settle.

The chairman of the meeting told the stockholders that work on the new $10,000,000 coal gas plant which was begun last October, under the terms of the new ordinance, changing gas standards and charges, is at a standstill because of the financial difficulties of the company, and he said he could not make any definite statement as to when it would be completed.

Another stockholder inquired whether the company had made any provision for paying settlements which might possibly be necessary if the city of Chicago won its suit for the return of $10,000,000 which it claims represents the amount the company "overcharged" its customers between 1912 and 1917.

Mr. Insull replied that no such provision had been made, because the company's counsel were confident of winning the suit. While the stockholders were discussing this matter at the annual meeting, the so-called ten-million-dollar case was being heard in a court room only a few blocks away.

The chairman said the situation of the public utility companies in regard to fuel, which has been precarious all winter, is still very serious. The resources of the Peoples Gas Company in this regard, he said, were at the lowest point in its history. He said he understood the difficulties that have been encountered by the State and Federal fuel administrations, and had great admiration for them because of what had been accomplished. He hoped that the coming of warmer weather would bring relief, but realized that the companies were far from being "out of the woods."

There were no directors to be elected, the only business before the meeting being the approval of the reports of officers.

The gas company's report to 6,800 stockholders, 4,000 of whom live in Illinois, shows that after manufacturing and selling gas and merchandise for which it received $19,338,637.74 during 1917, the company not only did not make a fair profit, but lost $365,201.35 in the deal. For that is the deficit shown in the annual report.

Although the total income was almost two million dollars greater than in previous years, the report of E. G. Cowdery, president of the company, says: "Nineteen hundred and seventeen has been the most difficult year for the operations of the company of any year for at least the past twenty years."

The complete report shows a table of comparative costs and income for the last four years. This table demonstrates that whereas the cost of producing 1,000 cu. ft. of gas and delivering it to the consumer ranged from 57.3 cents in 1914 to 61.62 cents in 1916, it was 72.57 cents in 1917. The cost for gas-making fuel increased 94.2 per cent during 1917, the report says.

Despite the unencouraging financial view of the past year's business, 1917 was a year of record industrial and commercial achievements for the Peoples company as indicated by other phases of the annual report. For instance, it is pointed out that the low wholesale price of gas established by the company last year permitted the greater use of gas for industrial purposes and methods were adopted to develop this use in large manufacturing plants.

"This development proved to be more rapid than anticipated," President Cowdery says, "and has resulted in largely increased sales of gas, the largest customer now using 10,000,000 ft. per month, with several others closely approximating the same amount."

During the year the company also developed plans for a new $10,000,000 coal gas plant which is to be erected within the next three years. Another important and patriotic accomplishment of the year was the installation of apparatus in two of the company's plants for the recovery of toluol, which is one of the prime necessities in the manufacture of high explosives.

The portion of the report containing President Cowdery's complete statement follows:

To the Stockholders of the Peoples Gas Light & Coke Company:

On behalf of the board of directors, I submit herewith the twenty-first annual report, since consolidation of the Peoples Gas Light & Coke Company, covering operations of the company for the year ending Dec. 31, 1917.

The gross receipts for the year were $19,338,637.74; for 1916, $17,037,894.02, not including industrial or natural gas. For the purpose of comparison with figures of 1917 which include industrial or natu-

(*Continued on page* 166)

Samuel Insull Resigns from Presidencies of Two Corporations

Announcement was made at Chicago last week that Samuel Insull, chairman of the board of directors of the Peoples Gas Light & Coke Company, of Chicago, and head of many other gas and electric utilities in the Middle West, had resigned from the presidencies of the Western Power Company, of Pittsburgh, and the West Penn Railways Company.

Inability to devote the necessary time to the two corporations was given as the reason for Mr. Insull's resignation. Mr. Insull, during the last few years, has retired from several other utility companies in which he was largely interested. Since our entrance into the war much of his time has been taken up by his duties as chairman of the Illinois State Council of Defense.

Preservation of Eyesight for Industrial Workers in War Time

The National Committee for the Prevention of Blindness has issued a large poster which sums up striking truths in pithy language as follows:

BAD LIGHTING
may permanently injure the sight of workers; lessens efficiency and reduces the output; greatly increases the chances of accident.

GOOD LIGHTING
means sufficient light well distributed and without glare. Employers who do not provide good light are wasteful.

Workers who use poor lighting are reckless

The eyesight of industrial workers may be conserved or badly impaired by artificial light, depending upon its proper or improper application. Already laws regulating the artificial illumination of factories, and requiring not only sufficient light, but a proper application of it have been enacted in New Jersey and Pennsylvania. Similar legislation is well under way in New York and Ohio. The Illuminating Engineering Society has a Committee on Lighting Legislation working on the movement.

"GOOD LIGHTING MEANS SUFFICIENT LIGHT WELL DISTRIBUTED AND WITHOUT GLARE"—GAS LIGHTING'S MOST POTENT ARGUMENT

16 Per Cent Increase in Output at Old Colony Company

The Old Colony Gas Company reports its output for January at 9,558,000 cu. ft., compared with 8,292,000 cu. ft. the same month the previous year, an increase of over 16 per cent.

Medina, Ohio, Rate Increase Schedule Became Effective Jan. 1

In a recent circular to its patrons, the Medina Gas & Fuel Company, of Medina, Ohio, reminds them of the company's new rate schedule issued Nov. 30, to become operative on Jan. 1.

Under the new schedule, the sliding scale that has heretofore been effective is eliminated. The gross rate as filed is 28 cents per 1,000 cu. ft., less a discount of 3 cents per 1,000 if paid on or before the 10th of the month following the month gas is consumed, the minimum charge being 50 cents a month.

The reason given by the company for the raise in schedule is that everything used in the gas business has advanced in price to such an extent as to make the raise necessary, if the company is to continue to drill new wells and lay new lines to supply its customers.

Merger Contemplated by Two New York Companies

The Schenectady Illuminating Company has petitioned the Public Service Commission, Second District, for consent to a merger with itself the Mohawk Gas Company. It is alleged that the illuminating company holds all the outstanding capital stock of the gas company, $154,000 preferred and $376,900 common. The illuminating company furnishes electricity in Schenectady, Scotia, Glenville, Rotterdam and Niskayuna and at various points in Saratoga and Albany Counties. The gas company furnishes gas in Schenectady, Scotia, Glenville, Rotterdam and Niskayuna. The petition states that the business of the two companies is now carried on together and that it is believed that by merging many advantages and economies will be gained from the unification and simplification of the business of the two corporations.

Boston Gas Output for January Increased

Boston Consolidated Gas Company sold 943,416,000 cu. ft. of gas in January, an increase of 9.1 per cent over January a year ago. Last month's output was the largest in the history of the company and exceeded that of December, 1917, by 315,839,000 ft.

Rate Increase Petition Filed at Attleboro, Mass.

The Attleboro (Mass.) Gas Light Corporation recently filed a petition with the electric light and gas commission, asking for the raise of 10 per cent in the gas rates to all the gas users in the city, both resident and factory, making a net price of $1.10 per thousand feet for its product. The company gives as reasons for the raise in rates the increased cost of coal, labor and other necessities in the manufacture of gas.

At the present time the plant is making more than 80 per cent of the gas used in Attleboro.

Overcharge Will be Refunded at Red Wing, Minn.

The gas company expects to refund by check on March 1 to consumers all excess charges, while the increased rate schedule was in effect, City Attorney C. P. Hall was informed recently. The company is charging at the increased rate on all bills up to Jan. 31, this being done to make refunds more promptly and to eliminate a volume of work for the bookkeeper.

THE PACIFIC GAS & ELECTRIC COMPANY'S net earnings for December were $595,190. For the full year net was $6,958,600.

When All Factors Are Considered Gas for House Heating Is Found Economical

(*Continued from page* 155)

know, like all other methods, accumulative, and to get the best results should be used continuously."

We must remember, of course, that the general advertising we are doing to promote installations in old as well as new buildings will have its effect on the distinctly new building campaign.

For instance, at the beginning of our fall or spring heater campaign we circularize the city thoroughly with a little pamphlet calling attention to heating with gas. Followed by stickers on the gas bills.. with a two weeks' high-class newspaper advertising campaign calling attention to the coming heating campaign to start on a specified date.

All during the campaign, of course, we will have nice window displays, on some of which we will show an old stove, with coal, ashes and dust prominently in evidence, with a sign, "The old way." The other part of the window will show a nicely arranged room, with a gas-team radiator lighted, and, of course, a placard with "The new way."

Frequent use is made of movie slides in the theaters.

In planning the advertising campaign it should be borne in mind that new building business speeds up in the spring, and that the campaign should be laid out entirely anticipatory to this spring drive.

Getting Ready for the Spring Drive

Well, now here we are, getting ready for a spring drive. We've done what we could in the general field in fall.

We have before us names and addresses of all new building prospects.

We have the names of the architects and the builders and the contractors who will figure in all of these buildings.

Send, first, to each builder one of the series of letters quoted above.

Second, a catalog describing the heating equipment you wish to sell him.

Third, another letter.

Fourth, a printed piece of matter illustrating and describing some two or three typical installations in the field which would most interest him. This should be a "de luxe" piece of printed matter.

Fifth, another letter.

Then he's pretty nearly ripe for the plucking.

The direct-by-mail appeal to the architect should be made along the same program, except that your letters must be letters which meet the architect's mind—letters which speak his language.

So with the builder.

For instance, a letter to F. De Puyster Smythe, Boulevard Building, might well have this appeal:

Dear Sir:

You, among other architects, have often asked why we can't heat entire houses with gas the winter through and with satisfaction to the owner.

Till recently we've been forced to sidestep.

Now, however, we're in a position to go all the way with you, etc.

And, you know, a contractor or builder is just plain every-day "folks" like you and me; so write him the kind of a letter you'd read yourself.

Wouldn't it go something like this?

Dear Mr. Builder:

The house you are building for Mr. James Dorsey at 1223 Newberry Boulevard is going to be up against it for heat now and then—

—even if Mr. Dorsey has a lot of money—

—unless

—you fortify Mr. Dorsey against cold by putting it all up to the gas company.

We are happy to say that we can now heat Mr. Dorsey's house and any other house you may be building, at a cost that will attract,

—with an installation cost that will not repel.

We, etc.

And to the man who's "putting up"this kind of letter:

Dear Sir:

If you have not asked me you have asked some one of our representatives why you can't heat your house by gas, or your store, or your factory.

Until recently we have had to sidestep such a question.

Now we can heat your house by gas. No boiler is necessary, no steam pipe, no water pipe.

We will put in each one of the rooms that is to be heated a permanent heating plant, a cast-iron radiator.

Bear in mind that I am not speaking of a temporary room heater, but a live investment which you can speedily satisfy yourself is a wise economy because of its saving in gas.

The reason for this saving is detailed on the two following pages. You will find there also a complete description of the system which we are recommending.

Our Mr. Jones will be glad to call, at any hour you may name on the enclosed postal card, to tell you more about our plan.

Sincerely,

We have done our general advertising. We have written to architects, owners and builders. Now we call on them personally—on the owner first. Should the owner refer you to the architect, get from the owner all of the data possible as to size of the heating system required, price and cost of installation, and how best to install

From the data secured make out a formal proposition for heating the building, then call on the architect specifically on this one job. One can get much farther with the architect if he has a specific job to talk about, especially when he has all the necessary data and prices.

It is well to look up the owner of all vacant stores that have no heating systems. Solicit both the owner and the agent. Also solicit all stores which are about to be occupied and all stores which are being altered.

Solicitation

What class of men go best?

One notably successful Southern property says:

"We do not use special men for this work, but it is handled by our regular men, who look after practically all kinds of work, both residential and industrial. They get their experience by spending several days at various times with representatives from the manufacturers while submitting estimates for equipping

buildings where they have prospects. Our experience has been that the heater is so simple to operate and explain that the ordinary salesman can usually give all the points and make the necessary measurements to install the correct sizes."

One leading new business man was asked as to the use of the special campaign men, who have been working, perhaps, on house-to-house lighting or gas-iron campaigns. He said:

"We have sold quite a number of Clow gasteam radiators, and while we have allowed the special campaign men to sell them, I don't advocate this, as, unless their sales are well checked up, you will find that through their inexperience heaters will not give the satisfaction that they will give if properly sold and installed.

"Personally, I believe that the sale of the Clow heater has been the result of long, slow work in this territory, and that advertising probably contributed as much towards popularizing this radiator as did personal salesmanship.

"When we engage special campaign men, we pay them on a basis of 10 per cent on sales which result in installations, while regular men are paid a salary plus a bonus, which is in the form of a graduated scale of points. On gasteam radiators we pay ten points. We only pay bonuses, however, on sales which do result in installations."

A most valuable contribution to effective intensive sales methods is made by our Southern representative, G. W. Bean, of Tampa, Fla., who says:

"If the city has a number of gas-appliance salesmen, I make it a point to have meetings with them and school them as much as possible in the talking and selling points of gasteam, and all during the advertising campaign they are working up prospects in the part of the city that has been allotted to them. In some of our most successful campaigns gas companies have used my picture in their newspaper advertising, stating that they had arranged for me, as a heating expert to be with them all during the campaign, and that they would be pleased to have me visit any business houses, residences or other buildings and make suggestions for the heating arrangements or heating requirements. During the actual selling campaign we have some one in charge of a demonstration from morning until sometimes 11 p. m.; we invite school boards, city officials, county officials, doctors, ladies from different women's clubs to attend the demonstrations at some appointed time, when I make it a point to meet them there. I also make it a point during the campaign to visit all of the leading architects, take them with me one at a time and give them a complete working demonstration of the radiator. The day the actual selling campaign begins, usually every member of the force is turned loose to specialize on gasteam. They close all of the business they can, and my time is divided among them all in assisting with tough customers. As to the pay of the salesmen, I have nothing to do with it, as each gas company has its own system of paying its men, but under the U. G. I. point system I have known salesmen to make as high as $300 a month in commissions selling gasteam radiators, and while they are doing that you know that the company is also making money. Wherever I have been able to put on a campaign as outlined above, and have had the hearty co-operation of the gas company, we have made a big success in every instance."

Metropolitan centers will find valuable pointers in the methods employed by the Consolidated Gas Company, of New York, as outlined by George F. Karshner, who says:

"We do not use special men to sell steam radiators. Our regular salesmen are paid on a combination system which credits them with commission on the actual commercial transaction, the percentage being 10 per cent on the sale price of the radiator; in addition to the commission credit there is a gas consumption credit, depending on the actual consumption of the radiator. The estimated consumption of the radiator is figured to be one hour a day average for 183 days a year. The salesmen receive a credit of 5 cents per thousand feet of estimated annual consumption on the basis given. As I said before, this is in conformity with the regular way of paying salesmen, as we pay them both on the actual sale of the appliance and the estimated annual consumption.

"We have men calling on architects continually, and covering every new building, whether it is residential, business or factory. Initial information of this class of work is obtained from an agency that follows up new buildings, alterations of buildings, etc.

"We call attention to the spring and fall heating and auxiliary heating very extensively in our advertising, it being my belief that for certain months of the year in New York gas heating is actually cheaper than running a central coal plant. We have found that gas is generally cheaper up to Nov. 15, and from March 15 through the rest of the spring. We also believe that when gas is installed for spring and fall heating or for auxiliary heating where the coal plant does not entirely do the work, that the consumer, once using gas, may gradually extend the time he has made use of the gas, and probably eventually will become a user of gas throughout the entire season.

"Where low gas rates exist there is no question in my mind that, considering all the advantages of gas heating, there is a great opportunity for all-winter business with the gasteam radiators, where rates run as low as 50 or 60 cents.

"I am at the present time sending a letter to all the syndicates of New York who operate chains of stores, these including breweries who control saloons, drug stores, groceries, confectioners, cigar stores, telegraph, etc.

"A salesman follows up these letters who is competent to figure radiation and heating requirements, and one man is detailed to cover the entire syndicate or chain of stores, whether it is off his territory or not. We have found that one man dealing with the syndicates is much better than having a number of men calling on the general office of the syndicate soliciting business for the various districts. The man taking care of the syndicate divides the credit with the man on whose districts the appliance happens to be installed.

"In general we started selling steam radiators along the following lines: In various meetings of the entire sales force of the Consolidated and affiliated companies, including the hotel and restaurant division salesmen, the industrial salesmen and the domestic division salesmen, we instructed them thoroughly in construction, operation and selling points of the radiators. We advertised extensively in the newspapers, and gave all New York architects full information. I found that the best results were secured by getting the salesmen interested in this one appliance. Unless the salesmen are thoroughly educated to follow up advertising, I

do not believe the advertising will be effective. This is because the prices of the radiators are very high compared to other gas-heating appliances.

"Generally speaking, I find that the salesmen can sell a cheap article without exerting much educational effort, and I have learned to specialize on educating them on high-priced goods. My main reason in mentioning this is to suggest to you that when you start advertising for the gasteam radiator that your advertising will be much more effective if you insist that the salesmen be educated to follow up your work.

"The first year we sold steam radiators I considered a failure, but when I specialized on educating the salesmen, they were able to follow up advertising intelligently and we made it a huge success. Last year we could have sold a thousand more radiators if we could have obtained them."

The salesman who starts out without knowledge of the basic principles of selling gas for heat will not get very far. We commend to him these thoughts:

Objection to First Cost Outweighed by Economy in Operation

In selling gas for heat, we must be firmly intrenched in the knowledge that a gasteam radiator, while affording temporary heat speedily, and at less cost than any other appliance, is a *permanent* heating plant—a *cast-iron*, lifetime investment.

You will be confronted with objections to its first cost, as compared with the purely temporary heater.

But you can speedily satisfy your client that the purchase of a gasteam is really a wise economy, because of its saving on gas, through high efficiency in operation and its automatic control.

Figure Saving in Dollars and Cents

Indeed, by charging off from first cost of appliance the saving in operation, you can show him that a radiator is the lowest price heating system obtainable.

"Figure for your client what the consumption of an average "Clow" unit is, burning 25 ft. an hour for the first hour, 20 ft. after that, as against a straight-out consumption of 30 ft. an hour in another temporary appliance.

Value for Temporary Heat

Picture to him the performance of the gasteam radiator in operation, and when his room is heated properly, whether in early autumn or deep winter, it maintains that heat, automatically, without personal attention.

The waste of overheating, as well as its danger, is eliminated.

Again, without such a ready aid as the "gasteam," that chilly autumn evening is liable to find the whole family sitting around, shivering in a chilly room, rather than to "start the furnace fire."

The "gasteam" would perfectly perform this temporary heating function and save this family from the danger of untimely colds.

No Personal Attention—"Labor" Trouble Vanishes

Someone has to "tend fire" if you're using coal. The man of the house isn't home all day, and it's the prize maid only who will shovel in coal without danger of giving notice.

High Cost of Coal

The price of coal is high, and bids fair to be higher. Aside from the attractive first cost of heating with gas, as against coal—there is the difficulty of control with the solid fuel—your rooms are either too hot or too cold. Only an expert furnace-tender can make it otherwise. In *too much heat* there is waste of money, bodily discomfort, danger to health. There is equal danger in too little heat.

Rule for Determining the Amount of Radiation Required

The amount of radiation required for a given space is computed on the same basis as other steam radiation, and according to the following rule:

Allow 1 sq. ft. of heating surface for each 200 cu. ft. of space to be heated. Allow 1 sq. ft. of heating surface for each 2 sq. ft. of glass. Allow 1 sq. ft. of heating surface for each 20 ft. of wall.

The above amounts added together will give you the number of square feet of heating surface required to produce 70 deg. temperature in zero weather.

In figuring hot water radiation follow above rule and add 50 per cent to the number of feet of heating surface required for steam.

Example

Room, 50 x 40 x 12 ft.
Five windows, each 7½ x 4 ft.
Two exposed walls, 50 x 12 ft. and 40 x 12 ft.
Cubical contents, 50 x 40 x 12 ft., 24,000 cu. ft.
24,000 cu. ft. divided by 200 equals 120 sq. ft. heating surface.
Glass, five windows, each 30 sq. ft., 150 sq. ft.
150 sq. ft. divided by 2 equals 75 sq. ft. heating surface.
Exposed wall 50 x 12 ft. 600 sq. ft.
40 x 12 ft. . . 480 sq. ft.
1,080 sq. ft.
Less glass area . . . . . 150 sq. ft.
Net exposed wall area . . . 930 sq. ft.
930 sq. ft. divided by 20 equals 46 sq. ft. heating surface.
Total square feet of heating surface (radiation) required, 241, or four 12-section, 2 or 6-column gasteam radiators, each containing 60 sq. ft. of heating surface.

Judgment must be used in finding the proper location for each radiator, in order to overcome extra exposure, viz., glass fronts of stores and windows. Buildings having north and west exposures and of frame construction require the addition of 10 per cent to the heating surface in order to assure efficiency and quick results.

Danger in Inadequate Installations

We strongly advise against the installation of any heating system that is inadequate to the space to be heated. It is only necessary to install the same amount of gasteam radiation that would be used in ordinary steam radiation, but if less is used or any substantial reduction made from the amount indicated by the above rule, the result will likely be the same as when a boiler of inadequate size is used, *i. e.*, an increased fuel bill and unsatisfactory service. Nothing is saved in fuel cost. The amount of gas burned depends upon the amount of heat required and not upon the number of radiators.

In large rooms, such as churches, theaters and halls, where conditions are favorable, it is frequently possible to heat adequately with less radiation than the above schedule pro-

vides. In such cases the buildings should be piped for gas for the full quota of radiators and connections made for same, but it is expedient to install a lesser number of radiators at the outset with a view to ascertaining whether they will prove sufficient, knowing that the additional radiators (for which piping and connections have been provided) can be installed should they be found necessary.

Location of Radiator

Free circulation of air is necessary to insure combustion and to circulate the heated air. Radiators should be installed as near the windows as possible, or along the exposed wall, so that cold drafts will be warmed before entering the room.

GAS PIPES FOR GASTEAM RADIATORS

1 radiator—4 to 8 sections	1½ in.
1 radiator—9 to 15 sections	¾ in.
2 to 3 radiators	1 in.
4 to 5 radiators	1¼ in.
6 to 9 radiators	1½ in.
10 to 16 radiators	2 in.
17 to 27 radiators	2½ in.
28 to 60 radiators	3 in.
61 to 100 radiators	3½ in.
100 to 150 radiators	4 in.

Where twenty-five or more radiators are installed the gas supply piping system should be circuited or "looped" to insure uniform gas pressure and avoid dead ends. The above sizes are all the maximum—in many cities ½-in. pipe is sufficient for one radiator of nine to fifteen sections, ¾-in. pipe for two to three radiators, 1-in. pipe for four to five, 1¼-in. pipe for six to nine, 1½-in. pipe for ten to sixteen, 2-in. pipe for seventeen to twenty-seven radiators. This depends largely on the gas pressure.

Unit Heating

This is the period of conservation. Any system that will conserve food and labor means efficiency. By displacing the central coal plant with plain unit gas-heating appliances a high efficiency is managed. By eliminating firing and dirt, advance buying and storing of fuel has eliminated waste occasioned by non-efficient appliances.

We are conserving the fuel because we see a great use for the coal. When coal is made into gas every bit of it is utilized, and there is no waste. You heat only the part of the building requiring heat and you heat it only when you want heat.

The installation costs less. It is a permanent installation, lasting the life of the building. You do not have to depend on servants for operating the system. It is so simple that absolutely no one will object to starting the fire.

Many people figure on convenience. We should figure on the cost of fuel to them less convenience to them to actual cost. This convenience covers labor-saving, and during certain parts of the year with a gas-heating system people would have their houses warm when otherwise they would not take the trouble.

In figuring cost we should consider the cost for the whole season, not just for one month. We are finding that the average cost for the whole period is but a little more than that of coal.

Frankly, we believe that the air is better in a room with an unvented radiator than in a room heated with steam and hot-air system. Dry air contributes to throat and lung diseases.

Des Moines Now Has B.t.u. Standard

The substitution of the British thermal heat unit gas standard in Des Moines for the candle-power standard was authorized recently by the city council. This action will save approximately $50,000 a year for the Des Moines Gas Company in its oil bill.

Popularity of Large Gas Lamp Growing

A Pacific Coast gas company has just placed an order with the Welsbach Company, Gloucester, N. J., for sixty-seven complete lamps for immediate shipment, each of the lamps to be of fifteen mantles.

This is convincing evidence that the illumination of large buildings with a standard, inexpensive lamp is now possible. Evidences of its popularity and adaptability are shown by the increased demand on the manufacturers. At no time has the supply been equal to the demand. Many of the gas companies throughout the country are illuminating their offices and display rooms with this lamp, which is known to the trade as Welsbach No. 1658.

Rate Increase Requested by Watertown, S. D. Company

Development of a hot fight between the city council and the Watertown (S. D.) Gas Company is promised in the gas company's request, now in the hands of the public utilities committee for a 33 1/3 per cent increase in the rates for gas now being charged the consumer. If the franchise were amended to allow the increase asked, $2 per 1,000 cu. ft. would be charged for gas.

The gas company blames the rising price of supplies due to the war. Shutting down of the plant was hinted by the president of the company if the request for a raise in rates is denied. An offer was made to sell to the city, but no price fixed. A special meeting of the council has been called to consider the claims of the company.

Increase in Rate Granted at Seattle, Wash.

An order increasing the gas rates for the city of Seattle, Wash., approximately 25 per cent was issued to-day by the public service commission. The new schedule granted to the company is higher than the proposed scale of increases asked by the company several months ago when it filed its schedule with the commission.

The commission abolished the ready-to-serve charge, but increased the minimum from 35 cents to 60 cents. The new rates will increase the revenue of the Seattle Lighting Company $290,000.

15 Cent Increase Sought by Key West, Fla., Company

At the recent meeting of the Key West city council, the Key West Gas Company presented a petition requesting an amendment to its franchise permitting an increase of 15 cents per 1,000 ft. in the price of gas. The petition was signed by more than 700 customers, and M. F. Sands, manager of the company, who presented the petition, stated that many more consumers had asked to be able to sign the paper.

The president ruled that discussion would be ineffective until the ordinance was drawn up and presented to the council, which will be done.

Chicago Company Makes Its Report, Etc.

(*Continued from page* 159)

ral gas, the 1916 figures are $17,786,737.92.

During the year thirty-four miles of gas mains were laid in extension of the company's system, the total amount of mileage now being 3,069 miles. The increase in the number of meters set was 17,764, and in the number of gas stoves installed was 34,001, and in the number of arc lamps 7,390.

The company has 6,893 stockholders, of whom 4,091 are residents of the State of Illinois.

Nineteen hundred and seventeen has been the most difficult year for the operations of the company of any year for at least the past twenty years.

Although the stock of gas-making fuel was fully up to the maximum in the fall of 1916, such stock was reduced to the danger point in March, 1917, and while the receipts were ample for the daily use for the summer, it was not possible to recover the usual stock, so that during the present winter it has required constant effort to secure the daily supply, with the disadvantage of the increasing prices prevailing.

Oil, upon which the manufacture of water gas is so dependent, has advanced from time to time, until at present the price is at the maximum and nearly three times that paid for several years previous to 1916. The increase in the cost of oil for 1917 over 1916 was $1,835,756.66, or 55.7 per cent, equal to 5 77/100 cents per 1,000 ft. of gas made. At this time the average cost of oil is 6 15/100 cents per gallon, as against 5 1/3 cents per gallon the same time a year ago and 4 1/3 cents per gallon in 1916. The comparative cost of oil per 1,000 ft. of gas appeared in a table attached to the report.

It should also be noted the increase in the cost of gas-making fuel for 1917 over 1916 was $1,195,969.98, or 94.2 per cent, equal to 4 72/100 cents per 1,000 ft. of gas made.

Great attention has been given to the study of economy in every branch of the service, and it is believed that as good results have obtained as was possible with the present conditions relating to labor given consideration.

On Aug. 1, 1917, the new schedule of rates took effect, with the accompanying reduction of candlepower. Methods were adopted to develop the use of gas in large manufacturing establishments and for heating purposes, etc., to a much greater extent than heretofore undertaken, as the low wholesale price permitted the use of gas for such purposes. This development proved to be more rapid than anticipated, and has resulted in largely increased sales of gas, the largest customer now using 10,000,000 feet per month, with several others closely approximating the same amount.

The schedule provided for a decreased candle-power standard during a period of eighteen months before reaching a strictly heat unit basis. Six months of this period have passed, and at this time and for one year to come the standard provides for 9 candle-power and an average monthly heat unit basis of 565 B.t.u.; when the heat unit basis is finally reached, it is believed it will be of material benefit in many ways to the company, and at least of equal advantage to the consumer.

During the past eighteen months the company has developed plans for the new coal gas plant, until at present they are well perfected, and on Oct. 1, 1917, the field work was started, and has continued uninterruptedly, with the exception of the excessively cold and stormy days during January.

During the year the company installed apparatus in two of its plants to recover from the gas the light oil known as toluol, in order that it might be turned over to the Government. During the present month two more plants will be completed, which will largely increase the present production of toluol. The resulting product is naturally a by-product, the income from which tends to lessen the increasing operating expenses.

Attached to the report, but not shown here, is a table showing the total cost and the cost per 1,000 ft. of gas in detail for each of the past four years. A study of this table should make it quite plain to everyone the cause of the present difficulties of the company, and at the same time show the distribution of the money received for each 1,000 ft. of gas.

Herewith is submitted a condensed trial balance as of Dec. 31, 1917, certified to by the auditor, which shows the result of the operations of the company for the year 1917. There is also shown the gross and net receipts for the twelve months, together with the total mileage of mains now owned and operated by the company, and the number of gas meters, gas stoves, arc lamps and public lamps. There is appended a certificate of audit of the company's books and accounts, submitted after an examination made by Messrs. Arthur Young & Company, certified public accountants.

The gross receipts of the company from all sources were	$19,338,637.74
While the operating expenses, exclusive of bond interest, were	15,866,738.21
Leaving	$3,471,899.53
Deducting depreciation, reserves, etc..	1,461,950.88
	$2,009,948.65
Deducting bond interest	2,375,150.00
Leaving a deficit for the year of.....	$365,201.35

It is to be noted that dividends paid during 1917 were declared from surplus.

By order of the board,
E. G. COWDERY,
President.

Chicago, Feb. 11, 1918.

Watertown, Wis., Company Looking Foward to Increased Rates

The decision of the Railway Rate Commission anent the gas rates in Watertown will be made public shortly, and it is likely that an advance in rates will be granted the company upon its application. Ashland gas rates were boosted by the commission. The minimum bill under the new order is fixed at 50 cents. For the first 5,000 cu. ft. of gas per month the gross rate is fixed at $1.80 and the net rate at $1.65. All over 5,000 cu. ft. per month the gross rate shall be $1.70 and the net rate $1.55. The order is "emergency" and the old rates shall be restored again on Aug. 1, unless there is a specific order of the commission to the contrary.

Indiana Ruling Stops Free Service

The Public Service Commission of Indiana has just issued orders involving franchise obligations which are of the utmost importance to gas utilities throughout Indiana. The commission's rulings came on petitions from the Interstate Public Service Company, of which Chester P. Wilson is president. The company asked authority to discontinue giving free service to a number of towns and cities in the State, in which it had surrendered its franchise and had accepted indeterminate permits from the Indiana commission, as is authorized by the utility law.

The towns and cities involved were Monticello, Kentland, Lowell and Crown Point, Lebanon, Franklin. Gas was involved in several of the towns and cities. The commission ruled that the giving of such free service—although it was stipulated under the terms of the original franchise grants—constituted "discrimination against other consumers," and the company was ordered to desist from such practices.

The question of when the giving of such free services shall be discontinued now is before the commission, and the recent order may be retroactive to compel such municipalities to pay the company for such service from the date of the surrender of the franchise.

Savannah, Ga., Petition Granted

The Georgia State Railroad Commission has granted the petition of the Savannah Gas Light Company, asking authority for a flat increase in its gas rates of 10 cents per thousand cubic feet. An item telling of this company's request appeared in the AMERICAN GAS ENGINEERING JOURNAL, issue of Jan. 12.

The authority is granted with the proviso that the Savannah Gas Light Company shall serve its customers with a gas of a standard quality, whose heating units shall equal 575 B.t.u. within a radius of a mile of the company's central plant, with the privilege of allowing this standard to drop not below 565 B.t.u. during the scarcity of oils used in the manufacture of gas. The company is to make daily tests of the heating units of its gas and submit reports of these daily tests to the commission twice a month. The company is also to submit to the commission monthly financial reports, showing its revenue and operating expenses.

The increase was asked on the ground of the unusual expense incident to war conditions. The order is granted to be put into operation until further notice from the commission.

California Company Seeking Higher Rate

Evidence on the application of the Contra Costa Gas Company, of Pittsburg, Cal., for an increase in rates in the towns of Martinez, Pittsburg, Antioch, Concord and Crockett was heard before Examiner Harry Encell, of the railroad commission recently, and taken under consideration in order to allow the attorneys for the different towns to submit further data. The gas company attempted to show that the increase in labor cost in 1918 will be 37 per cent over the previous year, and that oil has increased from 70 cents a barrel to $1.05. The revenues in the different towns for the past year were: Pittsburg, $18,465.85; Antioch, $11,442.05; Concord, $3,948.50; Martinez, $17,959.95, and Crockett, $12,375.43. The company says that the return on its investment for the past year was less than 5 per cent.

New Bedford Company Issues New Bonds

The New Bedford Gas & Edison Light Company, of New Bedford, Mass., is issuing $408,000 ten-year 6 per cent first mortgage bonds, which are being offered by Harris, Forbes & Company, Inc., and Coffin & Burr, Inc., at 100 and interest, yielding 6 per cent.

This issue has been approved by the Massachusetts Board of Gas and Electric Light Commissioners, and additional bonds may be issued only under carefully drawn restrictions to a par amount equal to 50 per cent of the cost of new property, and then only with the approval of any commission or other authority having jurisdiction. Dividends have been paid annually during the last six years at the rate of not less than $12 per share.

Bloomington and Normal, Ill., Granted 15 Cent Rate Increase During War Period

The State Public Utilities Commission recently granted the petition of the Union Gas & Electric Company for an increase in the gas rate in Bloomington and Normal, Ill. An increase of 15 cents on the block rate was approved by the commission.

The local gas company went before the city commissioners during the forepart of December and notified them that they were going to petition the utilities commission for an increase, this being the proper procedure when a corporation holding a franchise from the city desires an increase in the rate.

The matter was taken up at once with the State commission and attornies for the gas company went to Springfield to place the proposition before the State body, and the above increase was granted for the duration of the war. The order will last one year. Should the war continue longer than that a supplemental order will be entered by the commission.

With the increase granted the following rates will prevail for gas to consumers in Bloomington and Normal: $1.10 net for the first 3,000 ft., was 95 cents; $1.05 net for next 7,000 ft., was 90 cents; $1 for next 15,000, was 85 cents; 95 cents for next 25,000, was 80 cents; 90 cents for next 25,000, was 75 cents; 80 cents for the next 25,000, was 65 cents, and 65 cents for all over 100,000, was 50 cents.

To small consumers this means a 15-cent raise, but to large consumers of gas it will mean a little less. The company will receive about 11 and a fraction.

Notice of Increase Filed at Collegeville, Pa.

The Collegeville (Pa.) Gas Company has filed a notice of an increase in the cost of gas, to become effective on March 1. The increase is 10 cents per 1,000 cu. ft.

BRIDWELL OIL & GAS COMPANY, Terre Haute, was recently incorporated with a capital of $20,000; sink and operate oil and gas wells; directors, Louis Silberman, S. F. Bridwell and William S. Berwick.

Eau Claire, Wis., Will Pay 10 Cents More for Gas

Eau Claire (Wis.) gas consumers will hereafter pay 10 cents more a thousand feet under a ruling of the railroad commission granting an increase in rates to the Wisconsin-Minnesota Light & Power Company.

Receiver Appointed at Holland, Mich.

The Holland (Mich.) City Gas Company, a subsidiary of the American Public Utilities Company recently filed a voluntary petition in the United States Court to be adjudged bankrupt and for the appointment of a receiver. Judge Sessions appointed the Grand Rapids Trust Company receiver. The assets were given at $310,000 and liabilities $326,000, with the American Public Utilities Company, Kelsey, Brewer & Company and the Elkhart Gas & Fuel Company as creditors. The company supplies Holland and Zeeland with gas. Recently the effort was made to advance rates to meet the increase in cost of operating, and the city of Holland by injunction sought to enforce the franchise rate. Placing the company under a receivership makes the rate-making a matter of judicial determination.

Natural Gas Rates at Fort Smith, Ark, Increased

The Wild Cat Oil & Gas Company, of Fort Smith, Ark., recently announced an increase in all its gas rates except domestic rates, which remain by the terms of its franchise at 15 cents per 1,000 cu. ft. The company increased its minimum rate to factories from 5 to 10 cents per 1,000 ft. All other rates to factories are increased 1 cent a thousand feet.

The advance in the price of domestic gas from 15 to 25 cents a thousand is to be prevented by the passage of an ordinance by the city commission. The increase in price became effective Jan. 1. The city officials have been investigating the situation for some time, and have auditors examining the books of the gas company to determine whether the new price is excessive.

The Rochelle Gas Company has applied to the Public Utilities Commission of Illinois for permission to advance its rates for gas service in the city of Rochelle.

Webster City Denied Increase While Other Iowa Cities Are Granted Increased Rates

The council at Webster City, Iowa, has turned down a request for an increase of the price of gas over the present rate of $1.50. A number of increases have been allowed in Iowa. Decorah, $1.30 to $1.45; Independence, $1.35 to $1.60; Clinton, $1.40 to $1.65; Marengo, $1.35 to $1.85; Grinnell, $1.40 to $1.90. By this it will be seen that Decorah is getting gas at a lower rate than of any city of its class in the State.

Three Indiana Cities Granted 25 Cent Increase

The Indiana Public Service Commission has just entered an order, as a war emergency measure, authorizing the Indiana Fuel & Light Company, which operates plants at Kendallville, Garrett and Auburn, to increase its schedules of gas rates during a period not to exceed two years. There were no protests from any of the cities represented in the petition, but the commission did not grant the full prayer of the company's petition, which asked for a permanent increase in gas rates.

Net Increase of 25 Cents

A net increase of 25 cents a thousand cubic feet was granted, bringing the new price to $1.50 gross and $1.40 net, while it had been $1.25 gross and $1.15 net before. The commission's order pointed out that the new rates may be changed at any time.

The commission's staff of engineers found the reconstruction value of the company's property to be $400,583, and the present value to be $366,537, including working supplies and working capital. The company asked that $3,791 be included in the appraisal for salaries and commission on promoting business, but the commission cut this figure down to $1,500 and made corresponding reductions in other similar demands made by the company.

The commission allowed 2 per cent as a depreciation charge, and some members of the body thought that this depreciation charge—which would estimate the life of the company's property at fifty years—was too low.

Allowing the company 7 per cent return on its capital stock, over and above operating expenses and overhead charges, the valuation fixed would mean that for every 1,000 ft. of gas sold under the old rates, the company would lose 28 cents. To bridge a part of this chasm the commission permitted an increase of rates totalling 25 cents. All the figures here given refer to the primary rate for gas, or that charged to the smallest consumers

15 Per Cent Increase to be Added to Bills at Marshalltown, Iowa

The Iowa Railway & Light Company, Marshalltown, Iowa, has decided to appeal direct to its consumers for a temporary increase in the price of its gas and electricity. Beginning with the next batch of bills consumers will be charged 15 per cent above the present net rates for gas. To each bill will be attached a printed appeal from the company asking the consumer to pay this increase until the price of coal comes down.

Manager Munson claims that his company has preferred a direct appeal to its customers for temporary increases without delay and cost of auditing, and admits that it is up to the consumers to pay the increase vountarily or not as they like. He predicts, however, if an auditing were to be had now with present prices of fuel and labor as a basis for costs the rates justified would be higher than those asked now. He hopes that the people will pay the increase temporarily, reserving the right to refuse at any time when cheaper coal can be secured.

Rate Increase Asked at Pueblo, Colo.

A hearing is in progress before the State Public Utilities Commission on the application of the Pueblo Gas & Fuel Company, of Pueblo, Colo., for permission to raise the rates to consumers of gas about 8 per cent.

The company bases its request upon the increased cost of coal, labor and other materials connected with the production of gas. Upon a valuation of $407,000, officials of the company claim they earned last year only 5.94 per cent.

San Diego Company Has Big Contracts with Army Camps

"In the gas department," reports the San Diego Consolidated Gas & Electric Company, "we are now furnishing Camp Kearny with complete gas service for cooking, water heating and heating. We have recently contracted with the San Diego Naval Reserve Station for gas, also with Fort Rosecrans. We have in prospect the North Island Aviation Base, both for the army and the navy. Besides this, we have a number of other large commercial customers who will come on our lines during the year."

Sandusky Company Employs High School Students as Meter Readers

The reading of meters and distributing of bills to customers by employing high school students in addition to the necessary regular force, as has been carried on for several months past, is materially reducing the expense of reading meters and distributing bills, reports the Sandusky Gas & Electric Company in a recent *Weekly News Letter* sent out by W. S. Barstow & Company, Inc. In addition it makes it possible to reduce the regular operating force to a minimum, as it has been found that where all meters are read between the 20th and the 1st of the month, it is not always possible to keep the entire force busy during the period from the 1st to the 20th of the month, when no outside construction work is under way during the winter months.

Illinois Associations Hold Meeting for the Purpose of Seeking Authority to Increase Rates

The executive committee of the Illinois Gas Association, the Illinois Electric Association, which includes light, power and steam heat, and the Illinois Electric Railway Association, including interurban lines and street cars, recently held a meeting at the LaSalle Hotel in Chicago, the object of which was to take concerted action, and to decide on the details of such action, asking the Illinois Public Utilities Commission for authority to increase rates.

The commission has, it is understood, signified its willingness to consider a blanket petition from all companies asking relief. This includes gas, street cars, electric light and electric power, steam heat and water.

Individual companies have petitioned the utilities commission but it is the consensus of ideas that it is most feasible for all public utilities to act in harmony. There are in Illinois 172 public utilities companies concerned in this meeting. Obviously, to consider 172 individual cases would be the work of a long, long time. The war would be over and everybody bankrupt before they could all be acted on. The plan the executive committees are at work on is to take up a general increase in rates, in various kinds of public utilities, grant increases and then take up individual cases where it is claimed the increase is not justified.

Personal Notes

EDWARD L. DONOVAN, who for several years has been sales manager for the Northern Indiana Gas & Electric Company, has been appointed manager to succeed George M. Dolley, who recently resigned, as was mentioned in the Jan. 19 issue of the AMERICAN GAS ENGINEERING JOURNAL.

CHARLES RAYMOND DAVIES died Dec. 26, 1917. He entered the service of the Pacific Gas & Electric Company at Oakland, Cal., as messenger July 6, 1910. By close application to duty he advanced from various positions of trust to head of the collection department. Through ill-health he was recently transferred to outside work in the commercial department.

JOHN J. KIRKPATRICK, manager of the City of Holyoke Gas & Electric Department, announced recently that he would not appoint any successor to Superintendent Oliver W. Adams, whose resignation was noted in the Feb. 9 issue of the AMERICAN GAS ENGINEERING JOURNAL. Mr. Kirkpatrick will devote a large share of his time to the gas works for the next few months, as there is a considerable amount of necessary reconstruction work to be done.

RODERICK DONNELL, chief engineer for several years of the Municipal Gas Works, of Holyoke, Mass., recently retired.

E. A. SAMPSON, a well-known engineer of Plymouth, has recently been appointed chief engineer of the Municipal Gas Works, of Holyoke, Mass., to fill the vacancy caused by the resignation of Roderick Donnell.

D. W. LUSK, an expert mechanical engineer of Baton Rouge, La., has joined the force of the Municipal Gas Works, of Holyoke, Mass. Mr. Sampson has assumed general supervision of the engineering department.

WILLIAM MOELLER, JR., for the past two years superintendent of the Midway Gas Company's million-dollar compressor near Maricopa, Cal., and of the company's pipe lines from McKittrick and the Midway Sunset fields to Los Angeles, as well as of the coast line from Santa Maria and Santa Barbara to Los Angeles, was promoted recently to the position of assistant general manager of the company and immediately assumed his new duties, which cover a large part of the management of the company's many interests in gas well drilling and transportation of gas for fuel to many cities in California. Mr. Moeller is well known among the oil men of the Midway-Sunset field.

ROY KILLINGER, formerly in the employ of the Scientific Heater Company, of Cleveland, Ohio, is now general sales manager of the Thermophore Manufacturing Company, of Kalamazoo, Mich.

MYRON BICKEL has resigned his position with the Goshen (Ind.) Gas Company. The resignation took effect Feb. 1.

THE MUSKEGON HEIGHTS (MICH.) GAS COMPANY recently held the annual meeting of its stockholders in the office of the company on Peck Street. The election of officers for the ensuing year resulted as follows: A. E. Dunn, president and manager; C. B. W. Cunningham, vice-president; Adam Pyle, Jr., secretary; Dr. R. I. Buzzard, treasurer. The following board of directors was also named for the year: A. E. Dunn, Frank Holt, W. J. Carl, C. B. W. Cunningham and Adam Pyle, Jr.

THE ALDRICH DOME & GAS COMPANY, of Birmingham, Ala., recently filed papers of incorporation with the probate clerk. The capital stock of the company is to be $15,000, of which $500 has been paid in. The officers of the company are: D. A. Greene, president; T. M. Fincher, secretary-treasurer, and E. D. Wilkerson, trustee.

THE GRAND RAPIDS (MICH.) GAS LIGHT COMPANY has re-elected the following officers: President, Emerson McMillin; vice-presidents, John T. Young and A. P. Lathrop; secretary, Glenn R. Chamberlain; treasurer, John A. Hulswit; assistant, C. N. Jellife. Directors, the officers, and T. J. O'Brien, William H. Anderson, L. H. Withey, Henry Idema, J. Boyd Pantlind and Henry Sullivan.

THE PITTSFIELD (N. H.) GAS COMPANY has chosen the following officers for the ensuing year: President, Sherburne J. Winslow; clerk, Nathaniel S. Drake; superintendent, Nathaniel M. Batchelder; auditors, Nathaniel S. Drake and Sherburne J. Winslow; directors, Sherburne J. Winslow, Nathaniel S. Drake, William A. Goss, Hiram T. Folsom, Charles N. Batchelder, Frank H. Sargent and Herbert B. Fischer.

COLONEL FREDERICK H. SMITH, one of the directors of the Peoria (Ill.) Gas & Electric Company and one of the most prominent Republican politicians of Illinois, died on Feb. 4, as the result of an acute attack of Bright's disease. Colonel Smith was generally referred to in his home community as "the man who put Peoria on the map."

THE NEW BRITAIN (CONN.) GAS LIGHT COMPANY, at the recent annual meeting of the stockholders, elected the following directors: H. E. Russell, of New London; F. N. Travis, of Torrington; E. N. Stanley, Judge John Walsh, A. J. Sloper, R. S. Brown and H. T. Sloper. At a subsequent meeting of the directors the following officers were elected: President-treasurer, A. J. Sloper; secretary, H. T. Sloper.

GEORGE STEINWEDELL, advertising and commercial manager of the St. Paul (Minn.) Gas Light Company for the last twelve years, has been appointed general manager of the Birmingham (N. Y.) Gas Company. Mr. Steinwedell assumed his new duties Feb. 15.

G. W. NAPIER, for many years in the accounting department of the St. Paul (Minn.) Gas Light Company, has been appointed office manager.

C. B. OGLESBY, sixty-four years of age, former president of the Dayton (Ohio) Gas Company, died Feb. 3, at his residence in Middletown, from heart disease.

THE SOUTH HAVEN (MICH.) GAS COMPANY elected the following officers and directors at the annual meeting: President, Dr. A. C. Runyan; vice-president, C. A. Peck; secretary and treasurer, C. A. Runyan. Directors, the above-named officers and G. C. Monroe and C. F. Hunt.

THE GRATIOT COUNTY GAS COMPANY, of Alma, Mich., held its annual meeting recently at the offices of the company and the following directors were elected; Francis King, C. F. Brown, B. J. Appleby, of Saginaw; R. B. Wagner, of Alma, and D. E. Snow, of Grand Rapids. At an adjourned meeting the directors will elect officers for the coming year.

Construction Notes

New Bench Will Increase Output of Greenville, Miss., Plant

According to Charles U. Gordon, financial agent of the Greenville (Miss.) Gas Company, a great many improvements are contemplated for the next year at the Greenville gas plant.

One of the many improvements which will be undertaken during the next twelve months is the construction of a new gas bench, with a capacity of 50,000 cu. ft., which when completed, will enable the company to manufacture at least 135,000 cu. ft. of gas per day.

There will be no increase in the price of gas furnished the consumers of the city, according to Mr. Gordon, who in speaking at a recent annual meeting declared that "considering the fact that a great many gas companies throughout the United States are raising their prices, Greenville is to be congratulated that at the present time it is not the intention of the company to ask for an increase.

"We are well protected with a good coal contract," said Mr. Gordon, 'and we do not anticipate any trouble from that line. In fact, a good many Southern cities have been endeavoring to secure coal and coke from us, and we had one car already booked for shipment to Vicksburg, and when the coal shortage became so acute here we decided to give it to the people of the Queen City of the Delta."

Quincy, Ill., Company to Make Charge for Repair Work

Beginning Feb. 1, the Quincy (Ill.) Gas, Electric & Heating Company will charge for all work done on the customer's premises on the customer's side of the meter.

In the past it has been the custom of the company to do work on the customer's premises at the company's expense, but owing to the greatly increased cost of labor and materials and the absolute necessity for additional revenue, the company finds it necessary to charge for this work.

The company will guarantee a supply of electricity to the customer's premises and also a supply of gas to the customer's meter, but beyond these two points all work done will be charged for.

Owing to the continued increase in the cost of materials the company expects shortly to ask for an increase in its gas rates; it is unable longer to carry the burden of increased costs without the help of its customers.

Gas Well Brought in at Petersburg, Ind.

At a depth of 1,160 ft., on the Fettinger lease, 6 miles south of Petersburg, Ind., the Bement Oil Company recently drilled in what is claimed to be the greatest gas well in the State. The escaping gas from a 6-in. casing could be heard for 2 miles. Stones were hurled 200 ft. high from the hole. The well lies in between the big Brenton & Selby gas wells, both of which average pressures exceeding 500 lb. and more than 6,000,000 cu. ft. volume.